

Allomorphy and the Irish Verbal Complex

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No matter what framework or subfield of linguistics one works in, questions about locality are consistently at the fore. These questions are often of a form like ‘*What interactions are possible?*’ and ‘*How far is too far for two items to be able to influence each other?*’ This paper asks these questions with respect to the morphological component of the grammar. The specific questions we will ask here are given in (1).

- (1) a. ‘*What is the locality domain for allomorphy selection?*’
(Embick, 2010; Bobaljik, 2012; Merchant, 2015; Svenonius, 2012)
b. ‘*Within that local domain, how close must two nodes be in order to trigger allomorphy on each other? What are the necessary geometric relations within a local domain for allomorphy to occur?*’
(Bobaljik, 2000; Embick, 2010)

Perhaps the most promising answer to the first question, the question of what constitutes a local domain, is put forward by Bobaljik (2012). Bobaljik proposes that the local domain for allomorphy is the morphological word, defined as a complex head¹. Specifically, Bobaljik claims that a node may trigger allomorphy on another node so long as no maximal projection boundaries separate them. His precise formalism is given in (2).

- (2) *Where α triggers allomorphy on β*
a. $\alpha \dots]_{X^0} \dots \beta$
b. $*\alpha \dots]_{XP} \dots \beta$

In (2a), α may trigger allomorphy on β because no maximal projection boundaries separate them, only X^0 boundaries. By contrast, α may not trigger allomorphy on β in (2b) because an XP boundary separates them.

Here I will take Bobaljik’s locality conditions to be important and valuable for two reasons. The first is that they make possible an understanding of some very robust, and otherwise unexpected, typological generalizations. The second is due to their elegance and simplicity, which makes them appealing candidates for universal constraints within UG. Thus, I take the stance that Bobaljik’s locality conditions should be upheld if at all possible.

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¹Note that Bobaljik and Harley (to appear); Bobaljik (2015) nuance this position somewhat, but the data discussed in these papers does not directly bear on the discussion here.

Additionally, there is another condition on allomorphy selection that has emerged in the literature. This idea is the notion that two nodes must be linearly adjacent in order for allomorphy to be triggered. This idea can be found at various points in history, possibly beginning with Carstairs-McCarthy (1987). But more recently it has experienced a revival, most notably in Embick (2010) (see also Bonet and Harbour 2012; Merchant 2015; Gribanova To Appear, a.o.). This idea is shown below in (3), where, just like (2), α triggers allomorphy on β .

- (3) a. $\alpha\smile\beta$
 b. $*\alpha\smile\gamma\smile\beta$

With these two concepts in mind, a clear picture emerges about when contextual allomorphy should be possible. This is codified in (4).

- (4) **The Licensing Condition for Contextual Allomorphy:** For a node α to trigger allomorphy on a node β , α and β must not be separated by any XP boundaries, and $\alpha\smile\beta$.

But of course these locality conditions must withstand empirical scrutiny. This kind of test of the locality condition in (4) will be the content of this paper.

I analyze an apparent violation of these locality conditions in the Irish verbal complex. The Irish verbal complex makes an ideal testing ground for exploration of the composite locality conditions in (4), as well as the broader questions (1), for several reasons. First, the Irish verb complex has been shown in the syntactic literature to comprise a range of heads (McCloskey, 1996, 2009, 2011; McCloskey et al., 2014; Elfnér, 2012; Acquaviva, 2014). Because the syntactic heavy lifting has already been done, we can build on this work and focus on the morphology. Second, we know empirically that the Irish verbal complex is a local domain for allomorphy. One of these allomorphic interactions, the *dependent/independent alternation* (DPA), constitute the principle focus of this paper. While it will be explored in more detail below, (5) provides a brief example. The DPA is verbal allomorphy triggered by a subset of complementizers, such as the negative complementizer *ní* in (5b).

- (5) a. **Gheobhaidh** tú carr nua.
 get.FUT.INDEP you car new
 ‘You will get a new car.’
 b. *Ní* **bhfaighidh** tú carr nua.
 NEG get.FUT.DEP you car new
 ‘You won’t get a new car.’

There is no way to get from from *gheobhaidh* [jo.i] to *bhfaighidh* [wāi] or vice-versa in the synchronic phonology of Irish. Therefore, this alternation is taken to be a case of suppletive allomorphy².

At first blush, the DPA as shown in (5) is problematic for Bobaljik’s theory of locality. This is because, superficially speaking, a maximal projection boundary separates the complementizer and the verb. This is shown below in (6), with the position of the verb demarcated with XP³.

- (6) [_{CP} *ní* [_{XP} *bhfaighidh* . . .]]

If the structure for the Irish verbal complex is really as it is shown in (6), then the locality conditions in (4) cannot be right. I take this to be a troublesome result.

I argue that this apparent problem for (4) is illusory. I propose that the complementizer and the verb are in

²This will be the defining characteristic of suppletion in what follows, following Bonet and Harbour (2012), a.o.

³The actual syntax I will be using will be discussed shortly in §3.

fact in the right local domain for Bobaljik’s locality conditions to apply and (6) is incorrect. This is made possible by the notion of *complementizer lowering*, or C-lowering (McCloskey, 1996).

The paper is organized as follows. In §1, I will lay out the key data for us here, focusing particularly on the heads which make up the Irish verb complex. Also in this section I will present the empirical case for C-lowering in Irish, building on McCloskey (1996). In §2 I will formalize C-lowering as a case of morphological Lowering as put forward by Embick and Noyer (2001) within the framework of Distributed Morphology (Halle and Marantz, 1993, 1994). In tandem with this discussion I will present the syntax I will be using here, adopting one of the most recent proposals for the syntax of Irish clauses, namely McCloskey et al. (2014). From here, §3 considers how we get the patterns of allomorphy to work out in light of this syntax. This will lead to an interesting set of puzzles relating to how Vocabulary Insertion (VI) occurs within DM. We will also examine the attested patterns among the Irish dialects, with the goal being that a sufficient account of the Irish verbal complex should explain the attested patterns within the dialect continuum. §4 further investigates these issues, particularly in relation to questions of allomorph selection and linearization. §5 will present the proposed way to account for these issues within DM, namely a pre-VI pruning rule which attempts to channel the articulated Spell-Out of Arregi and Nevins (2012). §6 concludes.

1 The Data: Verbal Complex

The Irish verbal complex is, as the name suggests, complex. In this section I will lay out the issues relating to it in stages. §1.1 addresses just the verb and the ordering of morphemes within it. §1.2 begins to incorporate complementizers, first by investigating a morpheme which I will refer to as *-r* and then the dependent/independent alternation (DPA). §1.3 reviews the arguments from McCloskey (1996) to motivate complementizer lowering (C-lowering) empirically.

1.1 Irish Verbs

The Irish finite verb is fairly standard from an Indo-European perspective. Verbs consist of a root and tense/mood morphology⁴, which is suffixal on the verbal root. (7) shows a few sample sentences with the verb highlighted and morphologically parsed.

- (7)
- a. **Éir-óidh** sí as an bpost.
rise-FUT she from the job
‘She will retire from the job.’
 - b. **Thabhar-fadh** sé rabhadh dom.
give-COND he warning to.me
‘He would warn me.’
 - c. **Ith-eann** an fear sin cáca gach lá.
eat-PRES the man that cake every day
‘That man eats cake every day.’

⁴Note that in this paper I will not discuss non-finite forms of Irish verbs, the so called ‘verbal nouns.’ I will also collapse the difference between tense and mood for the sake of exposition. Furthermore, from an Irish viewpoint, both tense and mood marking are both suffixes on the verbal root and are mutually exclusive, giving the impression that they are in complementary distribution. This makes this move not totally unreasonable, as it seems like the difference between tense and mood is not relevant in Irish, morphologically speaking.

The range of possible tense/mood suffixes varies across dialects. Legate (1999) discusses the two most extreme patterns. One, common in northern (Ulster) dialects radically reduces the number of possible suffixes, instead opting for a default suffix and overt pronouns. The second, found in traditional southern (Munster) varieties, has numerous portmanteaux suffixes which combine tense/mood and the ϕ -features of the subject. (8) shows the full Munster Irish conjugation for the verb *cuir* ‘put,’ while (9) shows the Ulster conjugation for the same verb. Both (8) and (9) are adapted from Legate (1999).

(8)

Munster conjugation

	Pres	Fut	Past	Imperf	Cond
1s	cuir- im	cuir- fead	chuir- eas	chuir- inn	chuir- finn
2s	cuir- ir	cuir- fir	chuir- is	chuir- teá	chuir- feá
3s	cuir- eann sé/sí	cuir- fidh sé/sí	chuir- \emptyset sé/sí	chuir- eadh sé/sí	chuir- feadh sé/sí
1pl	cuir- imid	cuir- fidimid	chuir- eamar	chuir- imis	chuir- fidimis
2pl	cuir- eann sibh	cuir- fidh sibh	chuir- eabhair	chuir- eadh sibh	chuir- feadh sibh
3pl	cuir- id	cuir- id	chuir- eadar	chuir- idís	chuir- fidís

(9)

Ulster conjugation

	Pres	Fut	Past	Imperf	Cond
1s	cuir- im	cuir-fidh mé	chuir- \emptyset mé	chuir- inn	chuir- finn
2s	cuir-eann tú	cuir-fidh tú	chuir- \emptyset tú	chuir- teá	chuir- feá
3s	cuir-eann sé/sí	cuir-fidh sé/sí	chuir- \emptyset sé/sí	chuir-eadh sé/sí	chuir-feadh sé/sí
1pl	cuir-eann muid	cuir-fidh muid	chuir- \emptyset muid	chuir- imis	chuir- fidimis
2pl	cuir-eann sibh	cuir-fidh sibh	chuir- \emptyset sibh	chuir-eadh sibh	chuir-feadh sibh
3pl	cuir-eann siad	cuir-eann siad	chuir- \emptyset siad	chuir-eadh siad	chuir-feadh siad

From this we can see that the morphemes which go into composing the verbal complex should minimally be V and T.

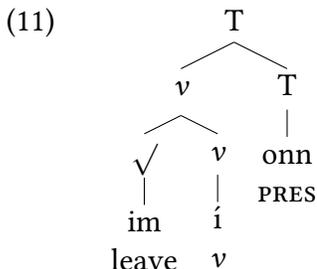
Additionally, there is further evidence that Irish has a morphological realization of *v* with some verbs, namely what is traditionally called ‘the second conjugation’ (Acquaviva, 2014). These verbs have the stable suffix *-igh* [i:] which shows sensitivity to the following tense/mood suffix. This is demonstrated in (10) with some sentences involving the second conjugation verb *imigh* ‘leave’⁵.

- (10) a. Im-í-onn siad gach lá.
leave-*v*-PRES they every day
‘They leave every day.’
- b. D’-im-igh- \emptyset siad.
D-leave-*v*-PAST they
‘They left.’
- c. D’-Im-í-odh sé ag 8 uair a chlog.
D-leave-*v*-PAST.HAB he at 8 o’clock
‘He used to leave at 8 o’clock.’

⁵A discussion of the morpheme glossed as D below is provided shortly.

From this we can conclude that the Irish verb minimally incorporates three morphemes: V ν T, in this order.

Note that if the verb undergoes head movement to T in the syntax, as proposed by Chung and McCloskey (1987) and McCloskey (1996), this morpheme order is the predicted order from the Mirror Principle (Baker, 1985), assuming head movement in this case is leftward adjunction. This is shown in (11), which parses the verb in (10a) *imíonn* ‘leaves.’



With these basics in mind, let us now incorporate complementizers.

1.2 Complementizers in the Verbal Complex

It has long been noted that complementizers in Irish are notably ‘close’ to their following verbs. This closeness is observed by a few features. First, complementizers and the finite verb form a single prosodic word (Bennett et al., 2013). Second, syntactically nothing may intervene between the complementizer and the verb. Based on this, McCloskey (1996), in my view rightly, puts complementizers into the verbal complex. (12) provides some examples.

- (12)
- a. **Ní-or mhill** sé an fhianaise.
NEG-R destroy.PAST he the evidence
‘He did not destroy the evidence.’
 - b. ... **go n-éir-óidh** sí as an bpost.
c rise-FUT she from the job
‘...that she will retire from the job.’
 - c. **An dtabhar-fadh** sé rabhadh dom?
Q give-COND he warning to.me
‘Would he warn me?’

It is worth noting that the elements which comprise the set known as ‘complementizers’ is much larger in Irish than in many other languages. This goes back as long as there has been generative work on Irish, dating back at least to McCloskey (1978). (13) provides the full table of these elements.

(13) *Irish Complementizers*

	Complementizer	Meaning	Occur with -r?
a.	<i>ní^L</i>	Negation	✓
b.	<i>an^N</i>	Interrogative Marker	✓
c.	<i>go^N</i>	Embedded Declarative Complementizer	✓
d.	<i>nach^N</i>	Embedded Negative Complementizer	✓
e.	<i>a^N</i>	Indirect Relative Marker	✓
f.	<i>a^L</i>	Direct Relative Marker	×
g.	<i>dá^N</i>	Irrealis Conditional Marker	✓
h.	<i>má^L</i>	Realis Conditional Marker	×

In (13) we see that Irish complementizers cover a wide range of semantic functions, ranging from negation (13a, 13d) to relative markers (13e, 13f) and conditional markers (13g,h). Also of note is that (13) indicates whether a given complementizer occurs with *-r*, in a way to be discussed shortly. Observe that the set of complementizers which do or do not take *-r* is seemingly random; there are no semantic or phonological generalizations to be made⁶. The phonological point is particularly worth making. In (13e) and (13f), we see the two famous relativizers (McCloskey, 2002). Both are pronounced [ə], but one occurs with *-r* and the other does not. Therefore, membership in the subset of complementizers which occurs with *-r* does not seem to be phonologically motivated.

Now, what is this *-r*? *-r* and the related morpheme *d-*, are pieces of verbal morphology which double mark certain tense/mood features on the verb. Their distributions are practically identical, although not totally overlapping. See Oda (2012) for a discussion⁷.

What are widely considered to be core cases of *-r* and *d-* are found in the common simple past forms. Here, *d-* appears before verbal roots that begin either with a vowel or /f/⁸.

- (14) a. D'ól-∅ tú uisge.
d-drink-PAST you water
 'You drank water.'
 b. D'fhoghlaim-∅ tú Gaeilge.
d-learn-PAST you Irish
 'You learned Irish.'

Adapted from Oda (2012)

When one of the designated complementizers from (13) occurs before a verb in the past tense though, *d-* may not surface⁹. Instead, the complementizer is suffixed with *-r*.

⁶It is tempting to make an analysis out of the fact that the two non-triggering complementizers cause lenition while most of the triggering complementizers trigger nasalization. The high frequency negation marker in (13a) tells against this potential analysis though because it causes lenition but does take the dependent form.

⁷An account of this distribution may be within reach for DM with impoverishment. The exact analysis of this is beyond the scope of this paper, and for now I will gloss over the subtle and interesting differences between *-r* and *d-*.

⁸This behavior is not uniform across dialects. Munster forms famously occur with *d-*, realized as an orthographically independent word *do* [də]. This cross-dialect behavior is not of particular interest to us here.

⁹The Munster facts work the same here.

- (15) a. Ní-or ól-∅ tú uisge.
 NEG-*r* *d*-drink-PAST you water
 ‘You drank water.’
 b. . . . gu-*r* fhoghlaim-∅ tú Gaeilge.
 C-*r* learn-PAST you Irish
 ‘. . .that you learned Irish.’

Adapted from Oda (2012)

Now, occurrence of *-r*¹⁰ is sensitive to the identity of the root. This is cached out in the dependent/independent alternation, or the DPA.

As mentioned above, the DPA is verbal allomorphy triggered by complementizers. Importantly, the set of complementizers which triggers the dependent form is identical to the set of complementizers which take *-r*. Therefore, I will refer to these complementizer as “triggering complementizers.” A complete list of triggering and non-triggering complementizers is given in (16) for future reference.

(16)

Triggering Complementizers	Non-triggering Complementizers
<i>ní</i> negation	<i>a'</i> direct relative
<i>an</i> interrogative	<i>má</i> realis conditional
<i>go</i> embedded declarative	
<i>nach</i> embedded negation	
<i>a^N</i> indirect relative	
<i>dá</i> irrealis conditional	

As stated above, the *triggering complementizers* take *-r* and trigger the dependent form, and the *non-triggering complementizers* take *d-* and do not trigger the dependent form. A minimal pair is given below in (17) and (18). In (17), verbal complexes with the triggering complementizer *ní* are given, and in (18) with the non-triggering complementizer *má*.

- (17) a. ní raibh. . .
 NEG be.PAST.DEP
 ‘. . .was not. . .’
 b. má bhí. . .
 REAL be.PAST.INDEP
 ‘. . .if. . .was. . .’
 (18) a. ní-or ól. . .
 NEG-*r* drink.PAST
 ‘. . .didn’t drink. . .’

¹⁰But not Munster dialectal *do*. But even in Munster Irish *do* and *-r* never cooccur.

- b. má d'-ól. . .
 REAL *d*-drink.PAST
 '...if...drank...'

Comparing the two sentences in (17) and (18) shows the main differences between triggering and non-triggering complementizers. Triggering complementizers take the dependent form of the verb (17a), but non-triggering complementizers do not (17b). Additionally, triggering complementizers occur with *-r* (18a), while non-triggering complementizers take *d-* (18b).

Now, without further ado, let us take a closer look at the DPA. The full list of verbs which undergo the DPA is given below in (19).

(19) *The Independent/Dependant Alternation*

<i>Past Tense Alternations</i>		
Citation Form	Independent Form	Dependent Form
<i>bí</i> 'be' [bi:]	<i>bhí</i> [vi:]	<i>raibh</i> [rɛv] or [ro]
<i>déan</i> 'do' [dʒɛn]	<i>rinne</i> [ˈrɪnʲə]	<i>dearna</i> [ˈdʒar.nə]
<i>feic</i> 'see' [fɛkʲ]	<i>chonaic</i> [ˈxɔ.nɪkʲ]	<i>faca</i> [ˈfa.kə]
<i>téigh</i> 'go' [tʲe:]	<i>chuaigh</i> [ˈxu.ɪ]	<i>deachaigh</i> [ˈdʒa.xi:]
<i>Future Tense Alternations</i>		
Citation Form	Independent Form	Dependent Form
<i>faigh</i> 'get' [fā]	<i>gheobhaidh</i> [ˈjɔ.i]	<i>bhfaighidh</i> [ˈwā.i]
<i>Present Tense Alternations</i>		
Citation Form	Independent Form	Dependent Form
<i>bí</i> 'to be' [bi:]	<i>tá</i> [ta:]	<i>fuil</i> [fwɪlʲ]

In (19), we see that there is no plausible way to get from the independent form to the dependent form, or vice versa, in the synchronic phonology of Irish. Therefore, I take the DPA to be a case of true suppletion.

Now, as shown briefly above, the dependent form is triggered when and only when one of the triggering complementizers (the complementizers which occur with *-r*) precedes one of the verbs in (14). Importantly for us, *-r* never cooccurs with the dependent form.

- (20) a. An raibh tú tinn?
 Q was.DEP you sick
 'Were you sick?'
 b. *An bhí tú tinn?
 Q was.INDEP you sick
 Intended: 'Were you sick?'

Adapted from Oda (2012)

- c. *A-r raibh tú tinn?
 Q-r be.PAST.DEP you sick
 Intended: ‘Were you sick?’
- d. *A-r bhí tú tinn?
 Q-r be.PAST.INDEP you sick
 Intended: ‘Were you sick?’

In (20a) we see the only possible choice. The complementizer *an*, which is a triggering complementizer, must take the dependent form of the following verb. (20b) shows that the dependent form is indeed required here, because it occurs after a triggering complementizer. (20c) and (20d) show that in the context of the dependent form of a verb, *-r* may not occur, nor can *-r* and the independent form be used in its place. This contrasts with verbs that do not undergo the DPA, such as *cuir* ‘put,’ shown in (21).

- (21) a. A-r chuir tú an t-uisce-beatha ’sa chuisneoir?
 Q-r put.PAST you the whiskey in.the refrigerator
 ‘Did you put the whiskey in the refrigerator?’
- b. *An chuir tú an t-uisce-beatha ’sa chuisneoir?
 Q put.PAST you the whiskey in.the refrigerator
 Intended: ‘Did you put the whiskey in the refrigerator?’

Comparing (21a) with (21b) shows that *-r* is indeed required when it can occur. This is in contrast with the dependent forms in (20), which categorically cannot occur with *-r*. These results are summarized in (22).

(22)

	With Dependent Verb	With Other Verb
<i>-r</i>	×	✓

This distribution is firmly entrenched in the language. Patterns like (20) and (21) are incredibly robust, and these judgments are categorical and firm.

Let us now step back and ask which allomorph, *-r* or *d-* on the one hand, and either the dependent or independent form on the other, should be considered the ‘default,’ or Elsewhere, allomorph, and which is the contextual allomorph.

Based on examples like (14) I conclude that *d-* is the default allomorph, because it occurs when nothing precedes it. *-r* only occurs when in the context of a triggering complementizer. Therefore, it seems clear that *d-* is the default allomorph. Likewise, the dependent form occurs only when a triggering complementizer precedes it. Therefore, by the same logic, the dependent form should be considered the contextual allomorph and the independent form the Elsewhere form.

Now, let us turn our attention to C-lowering, mentioned briefly above. C-lowering will be important to us because it will create the right environment for the locality conditions discussed in the introduction to apply.

1.3 C-lowering

Now I will present the motivation for complementizer lowering, or C-lowering. This idea dates back to McCloskey (1996), who proposed it in order to account for certain differences between the semantics of certain sentences of Irish and their linear forms. §1.3.1 presents the original NPI facts from McCloskey, and §1.3.2

shows the sentential adverb facts, also from McCloskey. §1.3.3 introduces new data not discussed by McCloskey relating to the relative scope of negation and disjunction.

1.3.1 Fronted NPIs

McCloskey (1996) observes that NPIs may be fronted to the left of their licensors, specifically the negative complementizers. The NPIs in (23) are bolded.

- (23) a. **Greim ar bith** ní fhuil sé a ithe.
 bite any NEG is he eat.PROG
 ‘Not a bite is he eating.’
 b. **Pingin rua** cha-r chaith mé ar an bhád.
 penny red NEG-r spend.PAST I on the boat
 ‘Not a red cent did I spend on the boat.’

McCloskey (1996) proposes on distributional grounds that NPIs must be c-commanded by their licensors at S-Structure¹¹. Therefore, the examples in (23) must be derived from S-Structures such as those in (24). Bear in mind that these are extremely ungrammatical, even unparseable, as actual sentences of Irish.

- (24) a. *Ní **greim ar bith** fhuil sé a ithe.
 b. *Char **pingin rua** chaith mé ar an bhád.

The question is therefore how to get from (24) to (23). Raising the NPI to Spec,CP in the syntax would violate the c-command condition on NPI licensing. Additionally, raising the verb to C would create profoundly ungrammatical sentences, as demonstrated in (25).

- (25) a. *Ní fhuil greim ar bith sé a ithe.
 b. *Char chaith pingin rua mé ar a bhád.

¹¹This point is contentious. See, for example, Hoeksema (2000), among others. A full investigation of this is beyond the scope of this paper, but I do have a few thoughts.

The languages that Hoeksma looks at, primarily English and Dutch, have very different negation than Irish. In these languages, negation is more like an ‘adverbial,’ to use Hoeksma’s term, which occurs under T. In the Irish case, negation is extremely high, and contrasts with English and Dutch in terms of allowing topicalized NPIs in the first place, as these examples show.

- (i) a. ***Any bite** is he not eating.
 b. ***Ook maar iets** wil ik niet.
 anything want I not
 Intended: ‘Not a thing do I want.’

Furthermore, abandoning the c-command restriction on NPI licensing requires us to abandon another interesting cross-linguistic difference between Irish and English which McCloskey (1996), following Chung and McCloskey (1987), discusses. As McCloskey points out, Irish allows subject NPIs while English does not.

- (ii) a. *Anyone didn’t speak with me.
 b. Char labhair duine ar bith liom.
 NEG-R speak.PAST person any with.me
 ‘Nobody spoke to me,’ literally ‘Anyone didn’t speak to me.’

Adapted from McCloskey (1996)

It is not clear to me how to account for this difference without the c-command condition.

This leaves one option: lower C to the verb, which is exactly what McCloskey proposes. Therefore, we derive (23) from at as follows in (26).

(26)

Ní greim ar bith fhuil sé a ithe → Ní greim ar bith ní fhuil sé a ithe.

The exact details of this lowering operation will be discussed below in §3, but for now the fact that lowering seems to occur at all is what is important.

1.3.2 Leftward Adjuncts

In addition to the NPI facts, McCloskey discusses cases of leftward adjuncts in Irish. Adjuncts which, on interpretive and typological grounds, modify embedded TPs, appear to the left of the complementizer in embedded clauses. Some of these cases are shown in (27). Remember that the important aspect of these data is that the bolded adjunct is obligatorily interpreted in the embedded clause, not in the matrix clause.

- (27) a. Deiridís **an chéad Nollaig eile** go dtiocfadh sé aníos.
 say.3PL.PAST.HAB the first Christmas other C come.COND he up
 ‘They used to say that next Christmas he would come up.’
- b. Tá eagla orm **leath an ama** nach feasach mé an beo nó marbh thú.
 is fear on.me half the time C.NEG knowing I Q alive or dead you
 ‘I’m afraid that half the time I don’t know whether you’re alive or dead.’
- c. Tá a fhios agam [**i lár an gheimhridh**] [**ón ngrinneal aníos**] go gcaitear
 is knowledge at.me in middle winter.GEN from-the sea.bed up C throw.AUTO
 ballaigh ar an dtráigh.
 wrasse on the beach
 ‘I know that in the middle of winter wrasse are thrown up onto the beach from the seabed.’

In (27), we see that either a single adjunct (27a, 27b), or two adjuncts (27c) may appear to the left of the complementizer, *go* in (27a) and (27c), and *nach* in (27b). There is a particularly strong case in (27a) that the adverb is being interpreted in the lower clause and not the higher clause. This is because of the adverb itself, *an chéad Nollaig eile* ‘next Christmas.’ If it were interpreted in the higher clause, this would lead to a tense clash, causing ungrammaticality, because the meaning of ‘next Christmas’ does not compose with the tense of the verb, namely the past habitual. But it can compose with the tense/mood of the lower clause, namely the conditional. Therefore, the leftward adjunct must be interpreted in the lower clause and not the higher. The question then is how is the adverb interpreted to the right of the complementizer, in the lower clause, but surfaces to its left.

Considering these interpretive effect, McCloskey proposes that the linear order seen in (27) is derived from S-Structures such as those in (28), identically to our discussion of fronted NPIs above. Just as with our discussion of fronted NPIs, these proposed S-Structures are severely ungrammatical as actual sentences of Irish.

- (28) a. *Deiridís go **an chéad Nollaig eile** dtiocfadh sé aníos .
 b. *Tá eagla orm *nach* **leath an ama** feasach mé an beo nó marbh thú.
 c. *Tá a fhios agam go [**i lár an gheimhridh**] [**ón ngrinneal aníos**] gcaitear ballaigh ar an dtráigh.

McCloskey proposes that we get from the S-Structures in (28) to the surface forms in (27) via the same process of complementizer lowering discussed above. This is demonstrated below for the derivation of (28a) to (27a).

(29)

Deiridís go an chéad Nollaig eile dtiocfadh sé aníos →
 Deiridís go an chéad Nollaig eile go dtiocfadh sé aníos.

1.3.3 Negation and Disjunction

Irish shows a surprising and interesting pattern when two negated sentences are conjoined via disjunction. The important thing about this construction is what it means, as indicated by the English gloss for (30).

(30) [Ní-or ith mé prátaí] **nó** [ní-or ól mé deoch.]
 NEG-*r* eat.PAST I potatoes **or** NEG-*r* drink.PAST I drink
 ‘I didn’t eat potatoes **and** I didn’t drink a drink.’

What is important about these constructions is that the coordinator *nó* ‘or’ is not interpreted as ‘or,’ but rather as ‘and.’

The argumentation that this is evidence for C-lowering goes as follows. This sentence looks like it ought to mean $(\neg p \vee \neg q)$, but it actually means $(\neg p \wedge \neg q)$. But, considering that it actually uses the Irish equivalent of disjunction, *nó*, we want to incorporate this into the representation of the meaning somehow. Crucially, we can get from the actual meaning, $(\neg p \wedge \neg q)$, to one involving disjunction via DeMorgan’s Law. This gives us $\neg(p \vee q)$.

So, the question is how we get from the proposed semantics, $\neg(p \vee q)$, to (30), which has the morphological marker of negation in each conjunct.

I propose that we think of these cases as involving the negative complementizer, *níor*, lowering into each of the disjuncts. Thus, a single instance of semantic negation can appear in two places. The proposed analysis is demonstrated below in (31).

(31)

Níor [[ith mé prátaí] nó [ól mé deoch]] → Níor [[níor ith mé prátaí] nó [níor ól mé deoch]]

The proposed account in (31) accounts for the actual form of the utterance, as well as its semantics. Therefore, I take this to be evidence for C-lowering.

Furthermore, there is an interesting connection between these cases and cases from a more famous instance of lowering: English T-V lowering.

English T-V lowering demonstrates these ‘ATB Lowering effects’ as well. When VPs are conjoined, T must lower in each of the conjuncts.

To see this, first consider (32)¹².

(32) a. John has **completely** destroyed the opposition.
 b. *?John **completely** has destroyed the opposition.

In (32a) we see that the adverb ‘completely’ can occupy a position between T, as indicated by the auxiliary ‘has,’ and the VP. (32b) shows, furthermore, ‘completely’ must occur in this position and cannot modify TP. Therefore, I will take the position of ‘completely’ to occupy some position below T and above VP. The exact

¹²I follow Embick and Noyer (2001) in using ‘t’ to mark the origin site of a lowered node. I do not assume that lowering leaves a trace. Furthermore I have no idea how one would demonstrate this. I use this notation purely for expository purposes.

identity of this position is not important for our discussion here; the argumentation only requires that its position be below T.

Now, consider what happens when VPs are coordinated. We can be sure that the phrase being coordinated cannot be TP or T', because of the position of the adverb 'completely.'

- (33) a. Mathilda t_i **completely** $_{VP}$ [destroy-**ed** $_i$ the opposition] and $_{VP}$ [crush-**ed** $_i$ their dreams].
Both conjuncts
 b. *Mathilda t_i **completely** $_{VP}$ [destroy- \emptyset the opposition] and $_{VP}$ [crush-**ed** $_i$ their dreams].
Only right conjunct
 c. *Mathilda t_i **completely** $_{VP}$ [destroy-**ed** $_i$ the opposition] and $_{VP}$ [crush- \emptyset their dreams].
Only left conjunct

(28a) shows that when VPs are coordinated, T, here marked by the past tense suffix '-ed,' must lower into each conjunct. Severe ungrammaticality results if lowering occurs into only the rightmost (28b) or the leftmost (28c) conjunct.

There is a strong parallel between these English cases and the Irish cases in (26). Furthermore, I propose that these 'ATB effects,' to name them informally, are a trademark of lowering, and furthermore could be used as a diagnostic for lowering cross linguistically.

The parallelism between the English and Irish cases also suggests that an explanatory account of lowering may be within reach. I will provide a discussion of this point below in §7. For now, let us take stock.

In this subsection we have seen that there is considerable evidence for an operation of C-lowering in Irish, and that such the evidence which suggests its existence is entirely independent of the concerns about allomorphy with which we began¹³. I adopt the idea here, and in the following section I will formalize it within the framework of Distributed Morphology. But for now, the morphological structure of the verbal complex must be something like (29).

- (34) go n -im -í -onn
 C leave -v -T.PRES
 '...that leaves...'

Now that we have established C-lowering is part of the grammar of Irish, let us formalize it.

2 A Formalization of Lowering

C-lowering can be naturally understood within the framework of Distributed Morphology (Halle and Marantz, 1993, 1994). Recall what we want C-lowering to do for us; it should create a complex morphological word with the verb, and there should be no maximal projection boundaries between C and the verb. If C-lowering can do this for us, then we can maintain the locality conditions of Bobaljik (2012).

But before I present the formalism I will be using, it is worth taking some space to talk about why I am pursuing a morphological account and not another account. By hypothesis, the only ban on lowering in a derivation exists in the narrow syntax. This means that any step in the PF branch of the standard Y-model after

¹³Note also that Harley and Noyer (1999) and Oda (2012) also discuss a C-lowering account for Irish, but neither develops it in detail. The former simply identifies that the cases discussed in McCloskey (1996) may be accounted for via morphological Lowering, while the later simply takes it as a given. My account differs from these previous accounts in that it more fully develops the formalism and ties the C-lowering directly to allomorphy.

the narrow syntax could be where the lowering occurs. Particularly, there exists the possibility of phonological movement. Furthermore, this possibility is worth taking seriously, as it was what was originally proposed by McCloskey to account for C-lowering (McCloskey, 1996). Specifically, McCloskey proposed that C-lowering is motivated by the ‘prosodic weakness’ of complementizers in this language.

While this type of prosodic movement is attractive, I suggest that it is not the best way to think about C-lowering. This suggestion comes from three observations. First, let us consider the prosodic form of the complementizers, given in (35).

(35) *Prosodic Shape of Irish Complementizers*

	Orthography	Meaning	Phonological shape
a.	<i>ní^t</i>	Negation	[n ^h i:]
b.	<i>an^N</i>	Interrogative Marker	[ə]
c.	<i>go^N</i>	Embedded Declarative Complementizer	[gə]
d.	<i>nach^N</i>	Embedded Negative Complementizer	[n ^v ax]
e.	<i>a^N</i>	Indirect Relative Marker	[ə]
f.	<i>a^t</i>	Direct Relative Marker	[ə]
g.	<i>dá^N</i>	Irrealis Conditional Marker	[d ^v a:]
h.	<i>má^t</i>	Realis Conditional Marker	[m ^v a:]

In (35), we see that some complementizers should be considered weak by any definition of prosodic weakness. These include (35b, c, e, f). But importantly, not all complementizers in Irish have the same prosodic shape. Some have long vowels (35a, g, h), and one has the bimoraic sequence [ax] (see Bennett Submitted for the argument for the bimoraic status of these sequence in Irish). From this examination, we see that not all complementizers in Irish have the same prosodic shape. Therefore, I suggest that it is not the right move to pin their uniform behavior with respect to lowering on their non-uniform prosodic characteristics.

Second, the argument from prosodic weakness seems to make the wrong predictions with the original data used to propose C-lowering, namely fronted NPIs and TP-adjoined adjuncts. Let us return to a case of leftward adjunction, repeated below in (36). The proposed lowering analysis of these data is reproduced in (37).

(36) Deiridís **an chéad Nollaig eile** go dtiocfadh sé aníos.
 say.3PL.PAST.HAB the first Christmas other C come.COND he up
 ‘They used to say that next Christmas he would come up.’

(37)

- a. Deiridís go **an chéad Nollaig eile** dtiocfadh sé aníos →
 b. Deiridís gə **an chéad Nollaig eile** go dtiocfadh sé aníos.

If Irish complementizers were simple phonological dependents, we do not necessarily expect them to impose a category restriction on their prosodic host. Furthermore, assuming a strict indirect-reference view of the syntax-prosody interface (Selkirk, 2009, 2011; Bennett et al., 2013), there should not be any category information available to the phonology proper. Therefore, we expect the end of the narrow syntax, namely (37a), to lead to a perfectly licit prosodic parse as in (38) where the brackets indicate a prosodic constituent¹⁴.

¹⁴The only prosodic constraint that I can think of which would be violated by (33) is MATCH-PHRASE, as formulated by Bennett et al.

(38) *Deiridís [go an chéad Nollaig eile] dtiocfadh sé aníos.

In (38), the complementizer *go* is a simple phonological dependent. Therefore, we might expect it to be dependent on whatever occurs to its right, which in this case is the adjunct *an chéad Nollaig eile* ‘next Christmas.’ But this leads to severe ungrammaticality.

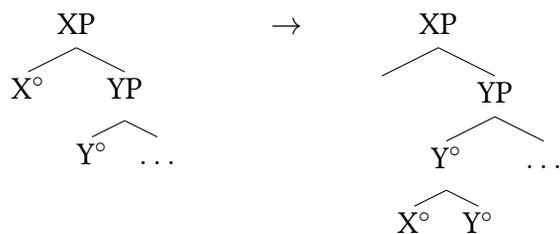
The final point which suggests that C-lowering is not prosodically motivated comes from the fact that C-lowering triggers allomorphy. Further, the allomorphy it triggers is suppletive. While there are theories which account for allomorphy in the phonology (Mascaró, 2007), these theories are best equipped to handle cases of allomorphy where the choice between the two allomorphs is phonologically conditioned, particularly when selection of a certain allomorph reflects an Emergence of the Unmarked. While these theories could possibly be used in the Irish cases, doing so seems to me to miss the elegance of these theories and the cases they are designed to handle. The point of these theories is to incorporate the observation that allomorphy selection is often phonologically optimizing. In the cases we care about here, the allomorphy is not phonologically optimizing. Therefore, using these theories does not seem like the right move. Rather, I suggest that its non-optimizing nature means that it is better to account for this particular case of allomorphy in the morphology, using the tools which Distributed Morphology makes available, such as Competition and Vocabulary Insertion (see Harley and Noyer 1999 for an overview of the operations made available within DM).

Based on the discussion here, I suggest that a prosodic account is not obviously within reach and turn to developing a morphological account of C-lowering within the framework of Distributed Morphology (Halle and Marantz, 1993, 1994).

Within the DM literature there is a formalization of lowering which fits the bill. This is the operation called Lowering, proposed by Embick and Noyer (2001). Embick and Noyer’s formalism is provided below in (39), and is presented in tree format in (40).

(39) [$XP X^\circ \dots [YP \dots Y^\circ \dots]] \rightarrow [XP \dots [YP \dots [Y^\circ + X^\circ] \dots]]$

(40)



In this formalism, Lowering takes the head of a phrase and adjoins it to the head of its complement. This creates a complex head very similar to the complex head created by head-to-head adjunction. More importantly for our purposes here, this Lowering operation creates the right environment for the locality conditions in (5); no maximal projection boundaries will separate the heads in the complex head after Lowering has applied. This is a welcome result. If this formulation of C-lowering is on the right track, then despite appearances, the locality conditions that we started with can be maintained.

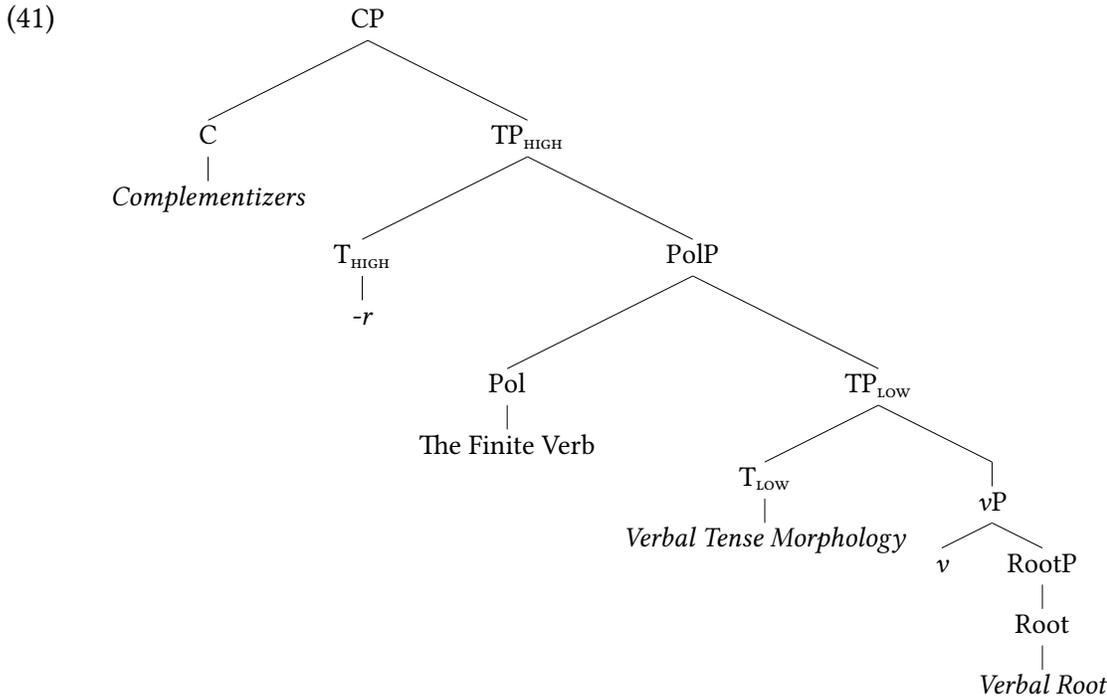
Therefore, I will adopt Embick & Noyer’s Lowering operation.

Now that we have identified the operation we want to use, we need to identify the syntactic structure that it will apply to. This will be the focus of the next subsection.

(2013). But of course, this is an OT constraint and is therefore violable. Indeed, it is a crucial aspect of their analysis that MATCH-PHRASE be violable.

2.1 A Syntax of Irish

In this paper I will be using what is, to my knowledge, the most recent proposals about the syntax of clause structure in Irish. This syntax was proposed by McCloskey et al. (2014) primarily to account for observations about Responsive Ellipsis in the language. I will not review the Responsive Ellipsis motivations here, but instead focus on the interesting morphological ramifications that this syntax has. The syntax is presented in (41).



The key features of this syntax are the split tense system and the Pol(arity) head. First, let us start with Pol. Pol has been posited by McCloskey (2009, 2011); Elfner (2011, 2012); Bennett et al. (2013) to be the position which the verb in Irish raises to. I will adopt this, although the polarity head will not play a large role in our discussion, as Pol is always morphologically silent in Irish.

The more interesting projection for our purposes is the high T projection. This split T system is meant to integrate the split T system of Stowell (2007), and more interestingly, McCloskey et al. (2014) argues that this split T projection has morphological consequences in Irish. Specifically, McCloskey proposes that *-r* is the morphological realization of T_{HIGH} . First, let us recall the basic facts behind *-r*.

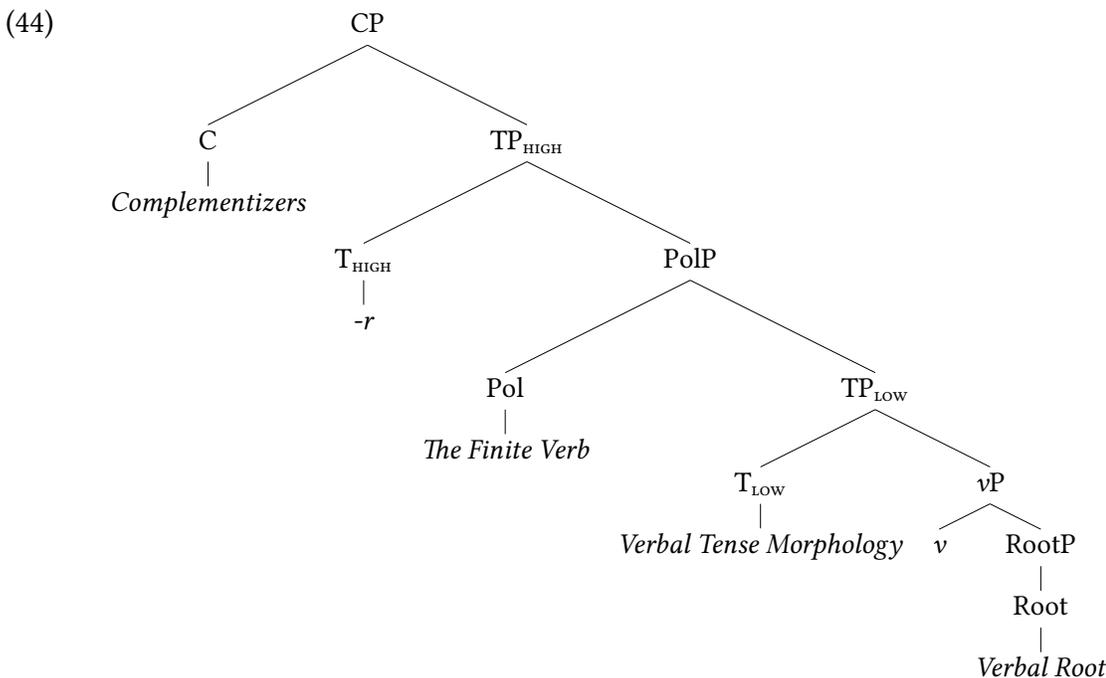
-r appears in the simple past as a mandatory suffix on a subset of complementizers, specifically the complementizers which also trigger the dependent form. Importantly, *-r* and a dependent form never cooccur. These core data are reproduced below in (42) and (43) respectively.

- (42)
- a. A-r chuir tú an t-uisce-beatha 'sa chuisneoir?
Q-r put.PAST you the whiskey in.the refrigerator
'Did you put the whiskey in the refrigerator?'
 - b. *An chuir tú an t-uisce-beatha 'sa chuisneoir?
Q put.PAST you the whiskey in.the refrigerator
Intended: 'Did you put the whiskey in the refrigerator?'

- (43) a. An raibh tú tinn?
Q was.DEP you sick
'Were you sick?'
- b. *An bhí tú tinn?
Q was.INDEP you sick
Intended: 'Were you sick?'
- c. *A-r raibh tú tinn?
Q-r be.PAST.DEP you sick
Intended: 'Were you sick?'
- d. *A-r bhí tú tinn?
Q-r be.PAST.INDEP you sick
Intended: 'Were you sick?'

Adapted from Oda (2012)

Thus, in terms of the morphology, the pattern to be accounted for here is one in which there is a choice between an overt exponent and a lack of exponence. Below we will devote a substantial amount of time to how to think about this pattern, but for now let us follow McCloskey et al. (2014) and take *-r* to be an exponent of T_{HIGH} ¹⁵. The tree with all of the nodes with their morphological exponents is given below in (39).

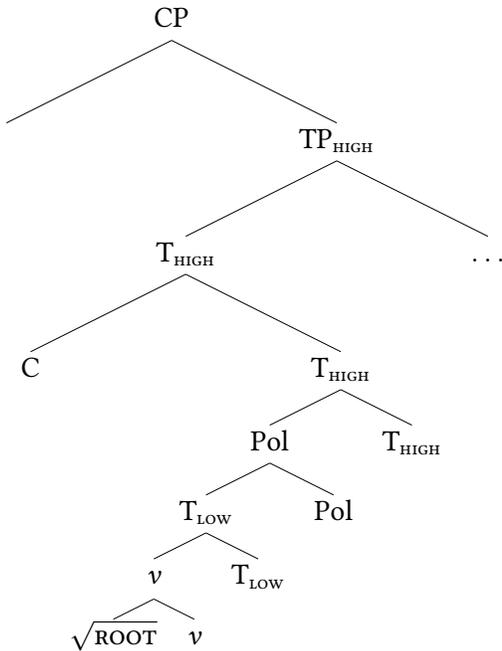


Now, assuming this syntax, we can begin to ask how the complex head necessary for Bobaljik's locality conditions on allomorphy selection is created.

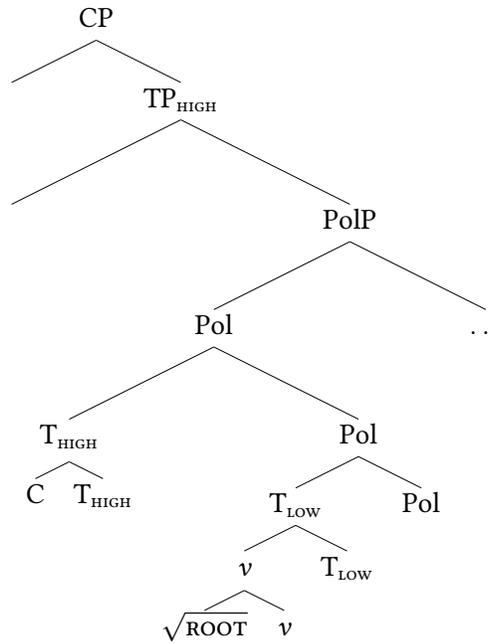
¹⁵This account differs substantially from the other recent account of *-r*, namely that in Oda (2012). I do not pursue Oda's account for two reasons. First, Oda's account relies on an unmotivated Agree system in which C agrees in T in tense features. This agreement is unmotivated because it gets the standard relation between C and T in which C passes tense features to T, not the other way around (Chomsky, 2008). Additionally, the Agree account also relies on Fission, a second morphological process. That means Oda's account relies on four moving pieces: Agreement, Lowering, Fission, and then VI/Competition. The account proposed here will involve only three processes: Lowering, Pruning, and VI/Competition. Therefore, by parsimony, the proposed account here is worth pursuing. See §5 for details on the proposed account.

There are in principle two possibilities. First, we could depart from McCloskey and claim that the verb actually raises to T_{HIGH} and then C undergoes Lowering to T_{HIGH} . Assuming head-to-head adjunction, this would produce the structure in (45). The second possibility is that McCloskey is right and the verb does not raise to T_{HIGH} . Instead, it could be that Irish presents what is, to my knowledge, the first documented case of successive lowering. This analysis would work as follows. First, C lowers to T_{HIGH} . Then, T_{HIGH} , along with C, lowers to Pol, where it forms a complex head with the verb which underwent head movement to Pol in the syntax. This analysis is demonstrated in (46)¹⁶.

(45)



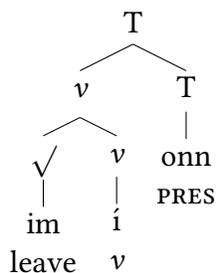
(46)



Differentiating between these two structures is difficult, but I propose that (46) is the right structure for Irish. This has to do with the the order of morphemes involved. If we assume that adjunction is always leftward, and furthermore if we assume that the order of morphemes in the verbal complex obeys the Mirror Principle, then (46) must be the right structure because it produces the right order of morphemes.

Furthermore it is reasonable to claim that the Irish verbal complex does obey the Mirror Principle. Recall from our discussion in §2.1, particularly example (11), reproduced below in (47).

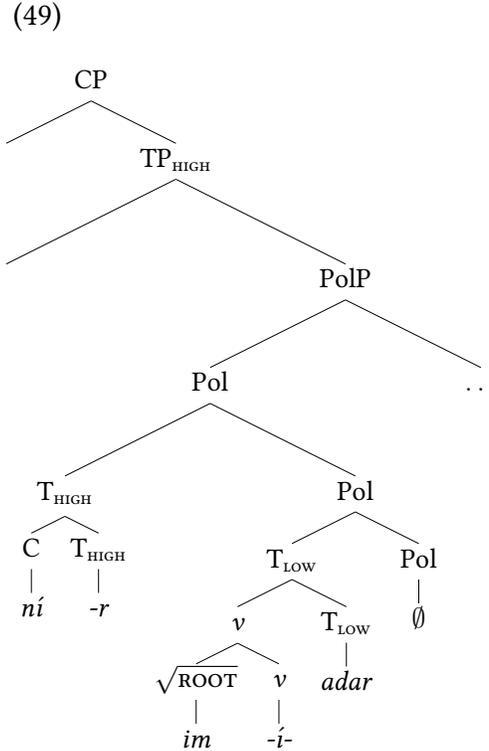
(47)



¹⁶Bennett, p.c., observed a second possibility. Namely, raise T_{HIGH} to C at some point before C-lowering. This would make the projecting category adjoining to Pol C, not T_{HIGH} .

In this subsection of the verbal complex, we see that Irish does obey the Mirror Principle. Therefore, by hypothesis, it is reasonable to operate under the assumption that Irish always obeys the Mirror Principle. If we grant this assumption, then (47) is the correct structure. The proposed analysis, with the complete morphological parse for (48), is given below in (49).

(48) Ní-or im-í-adar
 NEG-*r* leave-*v*-3PL.PAST
 ‘They didn’t leave.’



This structure is appealing because it straightforwardly accounts for the observed morpheme order. Therefore, I will adopt it.

Now that we have established the syntax, let us turn our attention to the allomorphy and how it is triggered.

2.2 Interim Summary

So far, we have seen that C-lowering is crucial to our understanding of locality in the Irish verbal complex. To see this, let us recall our locality conditions in (4), reproduced below.

(4) **The Licensing Condition for Contextual Allomorphy:** For a node α to trigger allomorphy on a node β , α and β must not be separated by any XP boundaries, and $\alpha \sim \beta$.

As discussed above, these locality conditions have two distinct parts. First, the two nodes must not be separated by any XP boundaries. Second, they must be linearly adjacent.

C-lowering as presented above satisfies the first of these conditions. It creates such an environment that C and the verbal root are within the same complex head, and therefore not separated by any XP boundaries. Therefore, if we allow C-lowering as a part of the grammar of Irish, then we can maintain the first clause of these conditions.

In the coming sections, we will turn our attention to the second clause: adjacency. Particularly, we will see which notion of adjacency is important, structural or linear. We will conclude that Irish provides strong

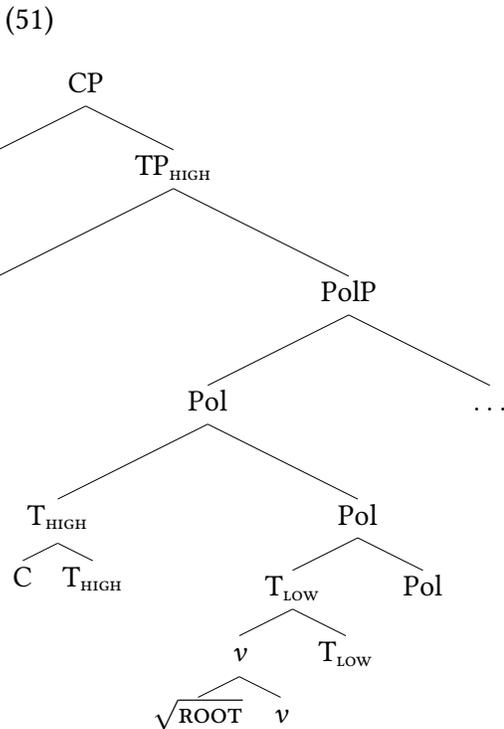
evidence for linear adjacency.

3 The Irish Verbal Complex and Allomorphy

In this section we will consider how we can understand how Vocabulary Insertion operates on this elaborate verbal complex. Our goals in this section are two-fold. We will be concerned with two questions, outlined in (50).

- (50)
- How is the dependent form triggered by C?
 - How is the alternation between exponent and non-exponence of *-r* best captured?

To go about answering these questions, let us reconsider the proposed structure that VI will apply to, reproduced below in (51).



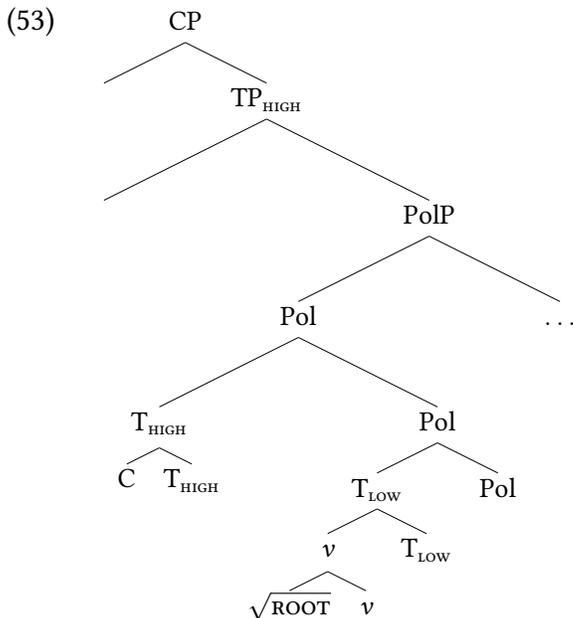
Following Bobaljik (2000), I will assume that VI begins at the most deeply embedded node, namely the root¹⁷. Now, let us assume that this root is one of the roots which undergoes the DPA. Specifically, let us assume that we want the verbal complex given in (52).

- (52) Ní dhearta. . .
 NEG do.PAST.DEP
 ‘. . .didn’t do. . .’

The two important things to keep in mind are that (a) we cannot have *-r* and (b) C is triggering the allomorphy on root.

¹⁷This means that I assume that roots can undergo allomorphy, along with Haugen and Siddiqi (2013); Bonet and Harbour (2012).

This means the root has to be sensitive to two things: C and T. As T_{HIGH} and T_{LOW} must agree, at least partially¹⁸, in tense features in this system, it is not easy to tell which T node the allomorphy shows sensitivity to. Here I will assume that it is T_{LOW} , although nothing seems to depend on this choice. The necessary sensitivities are demonstrated below in (53) by the dashed arrows.



The fact that the exponent of the root is sensitive to C particularly interesting here for two reasons. First, there is no structural relation between the two nodes; neither c-commands the other, nor does any other structural relation exist between the two that I know of. Second, because of the intervening T_{HIGH} node, they are not linearly adjacent. Furthermore, T_{HIGH} has not been subject to Vocabulary Insertion at the point at which, in this theory, the form of the root must be fixed. It follows in turn that the fact that T_{HIGH} will necessarily have a null exponent in the environment of a dependent root is unknowable. This means that we cannot prune this node using the pruning system in Embick (2010), where nodes with null exponents are pruned. We cannot know that T_{HIGH} will have a null exponent until it has been determined what the exponent of C is. Therefore we cannot prune it under Embick's system.

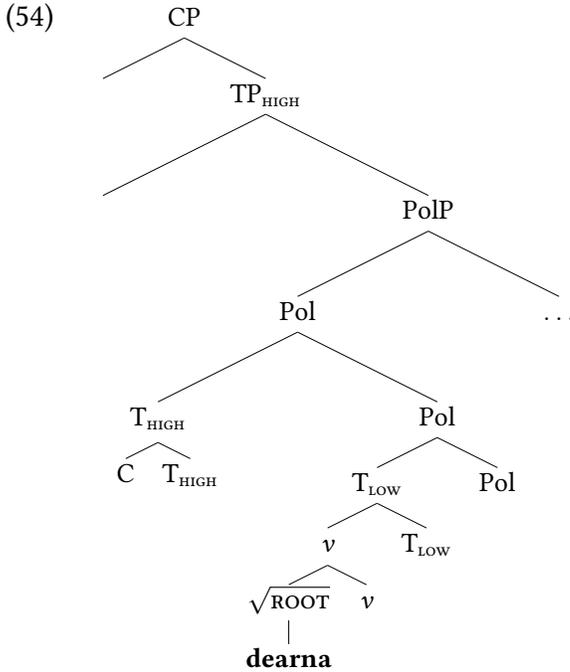
For the time being, let us entertain the possibility, contra Embick (2010); Merchant (2015); Gribanova (To Appear) and many others that non-adjacent nodes *can* in fact trigger allomorphy. This would give us the tool we need to understand the Irish facts above. If we go down this path, then we can allow the root to be sensitive to the choice of C, despite the fact that the two are not adjacent.

The derivation from this point would continue in a relatively uninteresting way. First we would insert the correct Vocabulary Item, the dependent root of 'do' *dearna*¹⁹. This step is shown in (54).

¹⁸As McCloskey (p.c.) points out, T_{HIGH} seems to expone fewer features than T_{LOW} . T_{LOW} , as discussed in §1, shows a wide range of tense/mood distinctions. Interestingly, T_{HIGH} shows a much smaller range of tense features, seemingly limited to $[\pm\text{PAST}]$ and $[\text{COND}]$. Importantly, this is precisely the same tense distinctions made by the copula, to be discussed below in §5.1. See also Ó Sé (1990). Working through these intricate connections is beyond the scope of this paper.

¹⁹Two things are worth saying about this.

First, the Vocabulary Items must be something as follows. I do not believe that these Vocabulary Items or their licensing conditions are necessarily controversial, as they show sensitivity to another node within the same complex head.



For our purposes here let us ignore v , Asp, T_{LOW} , and Pol, as they play no role in²⁰. Now let us consider which node should undergo VI next. The most obvious choice is T_{HIGH} , because, moving up the clausal spine, T_{HIGH} will be the first visible node.

Here we have a choice. Assuming that the tense specifications are those which would trigger $-r$, we can ask why we get null-exponence instead of $-r$. Recall that null-exponence is required in the presence of a dependent form. The most obvious thing to do here within DM is to use the technology of allomorphy, as sketched in (55)²¹.

- (55)
- $T_{\text{HIGH}} \Leftrightarrow d-$
 - $T_{\text{HIGH}} \Leftrightarrow -r / C_{\text{TRIGGER---}}$
 - $T_{\text{HIGH}} \Leftrightarrow \emptyset / C_{\text{TRIGGER---}} \sqrt{\text{ROOT}_{\text{DEP}}}$

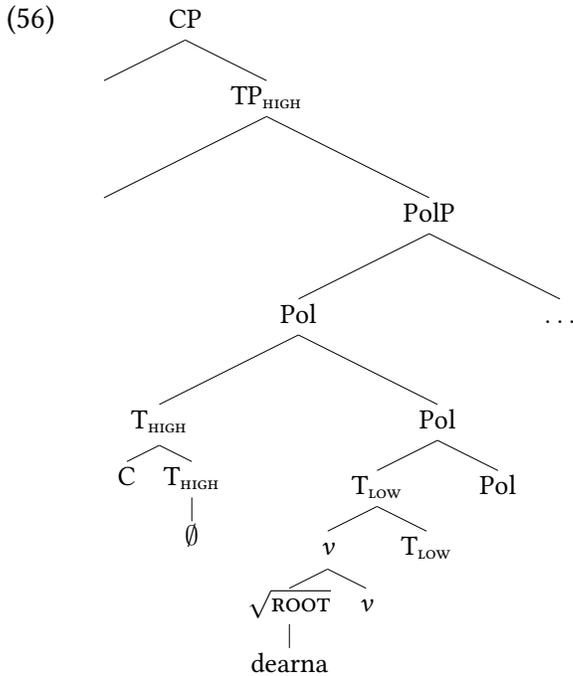
This relatively simple technology gets us what we want; in this case, T_{HIGH} will be realized as \emptyset instead of $-r$ because it is in the environment of a dependent root, namely *dearna*. This second step is given in (56). Again, the dotted lines indicate directionality of sensitivity in terms of which allomorph will be selected.

- (i)
- $\sqrt{\text{DO}} \Leftrightarrow \text{rinne}$
 - $\sqrt{\text{DO}} \Leftrightarrow \text{dearna} / C_{\text{TRIGGER---}}$

Second, I will not be concerned with the initial consonant mutations. Instead, I will be focused on the underlying form of the dependent form. Interestingly, there is good evidence that such underlying forms are in fact posited by speakers (see McCloskey 2004). Instead I will leave the exact mechanism of initial consonant mutations to future research. This choice does not seem to be important for our purposes here.

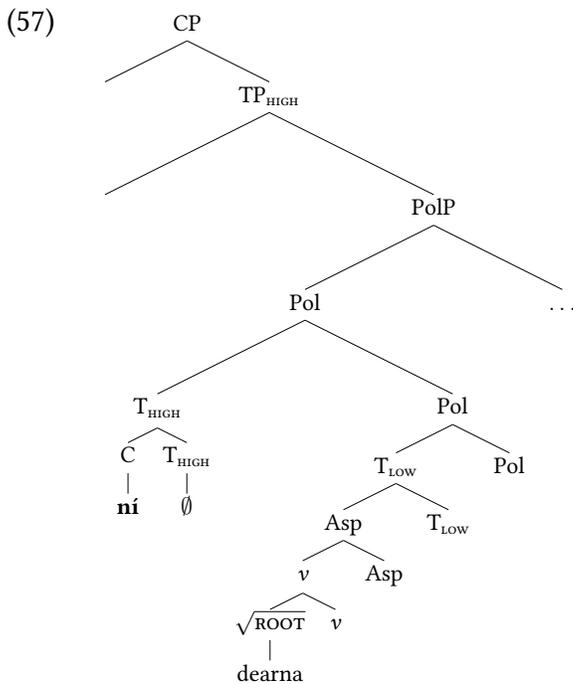
²⁰It is tempting here to use Spanning (Svenonius, 2012; Merchant, 2015) to account for the appearance of one Vocabulary Item, in this case *dearna*, spelling-out multiple nodes. I will remain agnostic about this point, whether Spanning is best or the system for cases like this developed in Bobaljik (2012). No matter which alternative is used, the issue of non-adjacency still holds, and the discussion here goes through.

²¹The diacritic ‘DEP’ in (55c) is just meant to demarcate one of the roots which undergoes the DPA, given above in (19). Such a diacritic is necessary under any theory. The same holds for the ‘TRIGGER’ diacritic. This diacritic picks out the the set of complementizers that trigger the dependent form. Recall that any other complementizer will trigger *do*.



In (56), we see that T_{HIGH} is showing sensitivity to the root, because it needs to know whether it's a dependent root or not, and to C, because it needs to know the identity of C.

Now all we need to do is insert C, which does not show any allomorphic sensitivity. In this case, we will correctly insert *ní*.



Thus, the allomorphic story here seems to work.

But I propose that our original hypothesis that we must allow sensitivity to non-adjacent allomorphs makes a pathological prediction, and furthermore misses an important generalization.

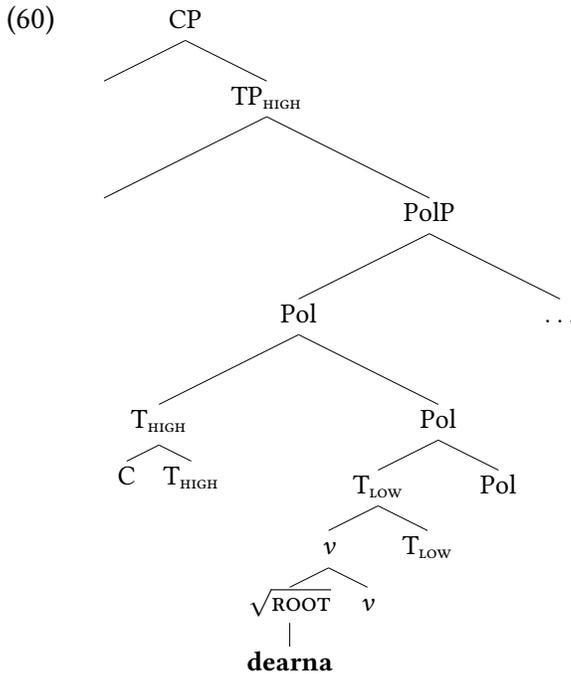
The pattern of exponent versus non-exponence of T_{HIGH} as it is formulated here is a consequence; nothing deep is going on besides two unrelated allomorphs. Thus, we can easily imagine a dialect which, say, has another exponent of T_{HIGH} in the environment shown in (55c). Imagine this allomorph is ‘-g.’ Thus, we expect a dialect like (58), which I label ‘dialect H,’ for hypothetical.

- (58) *Hypothetical Dialect H*
- a. D-ól mé an t-uisge.
d-drink.PAST I the water
 ‘I drank the water.’
- b. Ní-or ól mé an t-uisge.
 NEG-*r* drink.PAST I the water
 ‘I didn’t drink the water.’
- c. Ní-g dhearna mé m’obair-abhaile.
 NEG-*g* do.PAST.DEP I my.homework
 ‘I didn’t do my homework.’

This dialect described in (58) is perfectly possible in this system. All it would need is allomorphy statements like (59), which are practically identical to those in (55).

- (59) *Allomorphy Statements for Dialect H*
- a. $T_{\text{HIGH}} \Leftrightarrow d-$
 b. $T_{\text{HIGH}} \Leftrightarrow -r / C_{\text{TRIGGER---}}$
 c. $T_{\text{HIGH}} \Leftrightarrow -g / C_{\text{TRIGGER---}} \sqrt{\text{ROOT}_{\text{DEP}}}$

Furthermore, our grammar as described above makes the derivation of (58c) easy. The first step is shown in (60).



just considered: **C can only trigger allomorphy on the root if they are linearly adjacent.** The allomorphy account of the behavior of T_{HIGH} totally misses this generalization.

Furthermore, the requirement that C and the verbal root be linearly adjacent to each other is active in all extent Gaelic languages and dialects which I am aware of. In order to see this, let us look at a handful of Irish dialects, specifically the behavior of *-r* and dependent roots in them.

Irish dialects show a great range of variability in which roots undergo the DPA and which do not. For example, many Munster dialects²² do not use the DPA for the root meaning ‘go.’

- (63) a. Do chuas go Corcaigh inné.
DO go.1SG.PAST to Cork yesterday
‘I went to Cork yesterday.’
b. Ní-or chuas go dtí ceolchoirm Garth Brooks.
NEG-*r* go.1ST.PAST to concert
‘I didn’t go to the Garth Brooks concert.’

As we can see in (63), the root meaning ‘go’ does not undergo the DPA in this dialect. Now, observe how other dialects which do have the DPA for this root behave in (64).

- (64) a. Chuaigh mé go Corcaigh inné.
go.PAST I to Cork yesterday
‘I went to Cork yesterday.’
b. Ní dheachaigh mé go dtí ceolchoirm Garth Brooks.
NEG go.PAST.DEP I to concert
‘I didn’t go to the Garth Brooks concert.’

In (64) we see the expected pattern: when a dependent form is present, *-r* is not allowed. The important comparison is thus between (63b) and (64b). We see that once the dependent form is not triggered, as in (63b), *-r* is obligatory. This is the pattern we see across dialects; if a particular dialect does not have a dependent form for a root, *-r* becomes obligatory again. Thus, the adjacency requirement is so robust that it shows up across dialects, not just across verbs within a single dialect as we have seen above.

Additionally, dialects show variation in whether or not *-r* ever occurs. For example, in Baile an Lochaigh, a Munster dialect of the Dingle Peninsula, *-r* never occurs²³.

- (65) a. An gcuaigh sibh a chodladh in aon chor?
Q go.PAST you.PL to.sleep at.all
‘Did you all manage to fall asleep?’
b. Ní chuir sé fiú glaoch gutháin uirthi.
NEG put.PAST he even phone.call on.her
‘He didn’t even call her.’

²²Many thanks to Jody Coogan and Adrian Doyle for the Munster judgments.

²³Many, many thanks to Jim McCloskey for pointing this out to me, as well as providing the Baile an Lochaigh data from his corpus. Unfortunately though, based on the corpus data available to me at this time, it is unclear whether or not dependent forms are ever triggered in this dialect. In the data set I have available, the only verb which could undergo the DPA is the root meaning ‘go,’ although we have already seen that this verb commonly does not undergo the DPA in Munster. It therefore remains an open, and very interesting, question. The hope is that dependent forms are still triggered in this dialect, just as how they are triggered without *-r* present dialect-internally in other dialects.

- c. Is féidir a rá go bpleanáil sé an choir gan cháim.
 COP possible say.NONFIN C plan.PAST he the crime without flaw
 ‘It’s possible to say that he planned the crime without a flaw.’

But importantly, what we never find is a dialect which has both *-r* and a dependent form cooccur. This hypothetical dialect is given in (66), which is very similar to the hypothetical dialect H analyzed above.

- (66) a. *Ní-or dheachaigh mé go dtí ceolchoirm Garth Brooks.
 NEG-*r* go.PAST.DEP I to concert Garth Brooks
 Intended: ‘I didn’t go to the Garth Brooks concert.’
 b. *A-r fhaca tú an scannán nua?
 Q-*r* see.PAST.DE you the movie new
 Intended: ‘Did you see the new movie?’
 c. Cheap mé gu-r raibh sé ’sa pháic inné.
 think.PAST I C-*r* he in.the park yesterday
 Intended: ‘I thought that he was in the park yesterday.’

No dialect such as (66) exists, even though, like dialect H, it is perfectly possible in our system. All we would need is allomorphy statements such as (67).

- (67) *Allomorphy Statements for (66)*
- a. $T_{\text{HIGH}} \Leftrightarrow d-$
 b. $T_{\text{HIGH}} \Leftrightarrow -r / C_{\text{TRIGGER}}---$

Thus, it seems clear that the space of possible dialects is telling us something deep about the possible triggering conditions for contextual allomorphy: **in order for a node α to be able to trigger allomorphy on a node β , $\alpha \sim \beta$ ²⁴.**

²⁴Furthermore, the pattern Irish demonstrates between T_{HIGH} and dependent forms is attested in all other dialects of the other Gaelic languages.

In Scottish Gaelic, the equivalent of *-r* is *do*. Its behavior, mirroring Irish perfectly, is given in (i).

- (i) a. An **do** chuir thu an t-uisge-beatha ’san fhuaradair?
 Q T_{HIGH} put.PAST you the whisky in.the refrigerator
 ‘Did you put the whisky in the refrigerator?’
 b. *A’ chuir thu an t-uisge-beatha ’san fhuaradair?
 Q T_{HIGH} put.PAST you the whisky in.the refrigerator
 Intended: ‘Did you put the whisky in the refrigerator?’
 (ii) a. An robh thu tinn?
 Q be.PAST.DEP you sick
 ‘Were you sick?’
 b. *A’ bha thu tinn?
 Q was.INDEP you sick
 Intended: ‘Were you sick?’
 c. *An do robh thu tinn?
 Q T_{HIGH} be.PAST.DEP you sick
 Intended: ‘Were you sick?’
 d. *An do bha thu tinn?
 Q T_{HIGH} be.PAST.INDEP you sick
 Intended: ‘Were you sick?’

Thus, I reject the allomorphic account of *-r* vs. \emptyset for T_{HIGH} presented above in (54-57) because it misses this generalization.

Therefore, it seems like a satisfactory analysis of the DPA needs to take this strict adjacency requirement into account in a way that the allomorphic account cannot.

3.1 Towards Accounting for Linear Adjacency

In this section I will try to put forward an account which takes these linear adjacency effects into account. The most obvious possibility is that Vocabulary Insertion does not operate on hierarchical structures, but rather on pure linear strings with no hierarchical information, in a way reminiscent of Embick (2010), Arregi and Nevins (2012), and many others. Thus, VI would operate on (68), instead of on (51) above²⁵.

(68) $C T_{\text{HIGH}} \sqrt{\text{ROOT}} v T_{\text{LOW}} \text{Pol}$

Let us attempt to derive the correct form for the verbal complex, using (68) for (69), reproduced from (47), as our starting point.

(69) *Ní dhearna...*
 NEG do.PAST.DEP
 ‘...didn’t do...’

Again, our analysis is going to have to capture two things. First, it must capture that the dependent form is triggered because of the preceding *C ní*. Second, we must account for why *-r* may not occur in the presence of the dependent root *dearna*.

First, the notion of ‘inside-out’ from Bobaljik (2000) is not obviously applicable here, because hierarchical relations have been traded in for linear ones before VI (Arregi and Nevins, 2012). So starting VI at the root is difficult, if not impossible.

In the absence of an articulated word-internal hierarchical structure, it seems natural to investigate the hypothesis that VI proceeds from left to right or from right to left. Let us start with the first option, from left to right.

First, we will correctly insert the Vocabulary Item *ní* in the position of *C*. No issues arise at this step because *C* never shows allomorphic variation.

(70) $\mathbf{ní} T_{\text{HIGH}} \sqrt{\text{ROOT}} v \text{Asp } T_{\text{LOW}} \text{Pol}$

Next we will have to insert T_{HIGH} . This node will have to have access to the information concerning the two nodes directly adjacent to it, namely *C* and the root. Additionally, we will need allomorphy statements identical to those in (55), reproduced below in (71).

(71) a. $T_{\text{HIGH}} \Leftrightarrow d-$
 b. $T_{\text{HIGH}} \Leftrightarrow -r / C_{\text{TRIGGER}}---$

The situation in Manx is difficult to ascertain for two reasons. First, the language is undergoing revival after going extinct. Second, the language makes rampant use of light verb constructions, and all of these light verbs undergo the DPA. This means that it is hard to find cases where something like Irish *-r* or Scottish Gaelic *do* could appear. Regardless, Manx does not seem to manifest the unattested dialect discussed here. Thus, this pattern is quite old in the history of these languages in a way that an allomorphic account does not obviously capture.

²⁵For the time being I will abstract away from how this linear order is determined.

$$c. \quad T_{\text{HIGH}} \Leftrightarrow \emptyset / \text{---}\sqrt{\text{ROOT}_{\text{DEP}}}$$

Using such allomorphy statements, we will correctly insert the null exponent here. This step is shown in (62).

$$(72) \quad \text{ní } \emptyset \sqrt{\text{ROOT}} \nu \text{ Asp } T_{\text{LOW}} \text{ Pol}$$

Now Vocabulary Insertion will apply to the root. Here we run into the same problem as before; we still need the root to have access to a non-adjacent element. In particular, in order to correctly realize the root, the system must be able to detect whether C is a triggering C or a non-triggering C.

Now we could prune T_{HIGH} at this point, as done in Embick (2010). This would give us (73).

$$(73) \quad \text{ní } \sqrt{\text{ROOT}} \nu \text{ Asp } T_{\text{LOW}} \text{ Pol}$$

The root and C are now adjacent. We no longer have to appeal to sensitivity to non-adjacent nodes. We can correctly insert the dependent root *dearna* because it is linearly adjacent to C.

$$(74) \quad \text{ní } \mathbf{dearna} \nu \text{ Asp } T_{\text{LOW}} \text{ Pol}$$

The other nodes will all be silent, so we can ignore them here. Thus, left-to-right VI on a purely linearized string seems to get us what we want.

But I contend that this method is not without its drawbacks. In particular, it does not capture the dialect facts. It still relies on allomorphy statements (71), and therefore still predicts that a dialect such as dialect H or (66) will be possible²⁶ because it allows sensitivity between non-adjacent nodes. Second, if we consider the structure of the grammar beyond this narrow problem, it does not seem to be wise to have the morphology completely destroy hierarchical relations. This is because it has been long known in the phonological literature that the phonology has to be sensitive to hierarchical syntactic structure (see Selkirk 2009, 2011 for the most recent instantiation of this idea in the syntax-prosody literature). Therefore, this information must be available further downstream, so it does not make sense for the morphology to get rid of it. Additionally, it seems unwise to do away with notions such as ‘inward-out’ and ‘upward/downward’ in the morphology dating back to Bobaljik (2000), as these notions have been incredibly fruitful in predicting what kinds of allomorphy should be possible (see Bonet and Harbour (2012) for an overview). This strictly linear approach would require us to go back to the drawing board to understand these effects. Thus, I will not pursue this account further.

But, as discussed above, we still want linear information to be available. We have a few theoretical moves available to us. First, we could say that the morphology preserves hierarchical structure but produces a parallel statement with only linear precedence relations. VI would need to apply only to this linearized statement, ignoring the hierarchical structure. But why should VI care about this derivative linearization statement while ignoring the hierarchical structure, and further, why should the phonology care about both? Either way this direction does not seem to be the right one. Alternatively, we could say that the morphology does not produce a second linearization statement, but rather, using a metaphor from Chris Golston (p.c.), the morphology “fixes the child’s mobile of syntactic structure” in a certain order while still preserving hierarchical relations. This seems like the right way to go, and this type of account will be assumed in what follows.

Lastly, it is worth noting that things do not get better if we insert from right-to-left on the purely linearized string instead of from left-to-right. If anything, inserting right-to-left is worse, because we will insert the root before we insert T_{HIGH} . Therefore we will need to allow non-adjacent nodes to trigger allomorphy (C triggering

²⁶Additionally it predicts that dependent forms should never be possible in a dialect which always has *-r*. Unfortunately, there is no dialect without dependent forms, so this prediction cannot be tested.

allomorphy on the root), because T_{HIGH} will not have any exponent yet. We cannot prune it because we do not know at this stage of the derivation if it will be silent.

In this subsection we did a few things. First, we considered the possibility that VI applies only to purely linearized strings. This path brought us to some interesting places, particularly it allowed us to highlight the adjacency between C and the root in cases with dependent forms. But ultimately we decided not to pursue this path on theoretical grounds.

4 Obliteration and Irish

Here I will propose a novel account of the relevant facts. Specifically, I rethink the issue not in terms of allomorphy selection at T_{HIGH} , but rather whether or not it is present at VI to begin with. By investigating the issue in these terms, we can account for the second statement of the locality conditions above, namely that the two nodes must be adjacent.

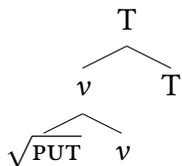
First, recall the basic pattern of exponence of T_{HIGH} in the past tense: when a dependent root is used, *-r* may not occur, but otherwise it is necessary. Additionally, we ran into issues regarding locality. If we allow allomorphy to be triggered on a dependent root from a non-adjacent C, we make a pathological prediction about cross-dialectal exponents of T_{HIGH} . But the bigger issue is that we want to capture the core pattern strongly suggested by these observations: **adjacency matters in allomorphy selection**. The closest we were able to get was by having VI apply solely to linearized strings and intermediate pruning after insertion of the null allomorphy of T_{HIGH} . But we abandoned that account for other reasons.

Here I will attempt a novel account of these facts. It will attempt to capture the appealing aspects of the analysis in §4.1, namely the strict adjacency it enforces, while hopefully sidestepping the issues it created. The crucial notion which I will appeal to is *obliteration* from Arregi and Nevins (2007). Obliteration is very similar to Impoverishment (Noyer, 1992) and Pruning Embick (2003, 2010), but crucially different. To see how they differ, let us start by examine Pruning.

Pruning is an idea dating back in the morphological literature at least to Embick (2003), although it is not given this name in this work. Instead, Embick states “. . . phonological \emptyset affixes are irrelevant for the purposes of linear adjacency. . .” (Embick 2003, pg. 166). This idea is more thoroughly formalized in later work, particularly in Embick (2010). Here, Embick interleaves the Pruning operation with normal Vocabulary Insertion. Essentially, what Embick’s Pruning operation does is allow him to account for apparent violations of Strict Adjacency, which states that allomorphy may only be triggered when two nodes are linearly adjacent, when a null head intervenes.

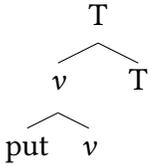
A sample derivation for the past tense English verb ‘put’ is given below. First, the important observation is that, here, the usual past tense allomorph ‘-ed’ is realized as \emptyset in the environment of $\sqrt{\text{PUT}}$. The syntactic structure that VI will apply to is given below in (75).

(75)



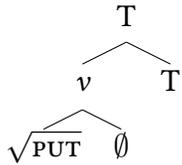
First the root will undergo insertion, following Bobaljik (2000). This step is shown in (76).

(76) *Insertion of the root*



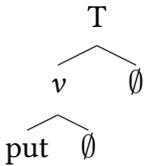
Next, ν will be inserted. As is typical in English non-derived contexts, ν will be realized as \emptyset .

(77) *Insertion of ν*



Importantly for Embick, the fact that ν has no phonological exponent means that it can be ignored for the linearization/adjacency calculation. In other words, $\sqrt{\text{ROOT}} \sim [\nu = \emptyset]$, $[\nu = \emptyset] \sim \text{T}$ is exactly the same as $\sqrt{\text{ROOT}} \sim \text{T}$. This means that we can correctly insert the null allomorph for T, shown below in (78).

(78) *Insertion of T*



But here I propose that Embick's Pruning is not the process we can use. The issue for us is that it is only when a node undergoes VI that the system can know if it will be realized with a null exponent. By then it is too late, because the form of the root has already been determined beforehand. In other words, Pruning is interleaved with Vocabulary Insertion. With the Irish cases examined here, if we want to maintain that VI starts at the root and maintain that allomorphy can only be triggered by linearly adjacent heads, T_{HIGH} must be deleted before VI. Embick's Pruning cannot give us this.

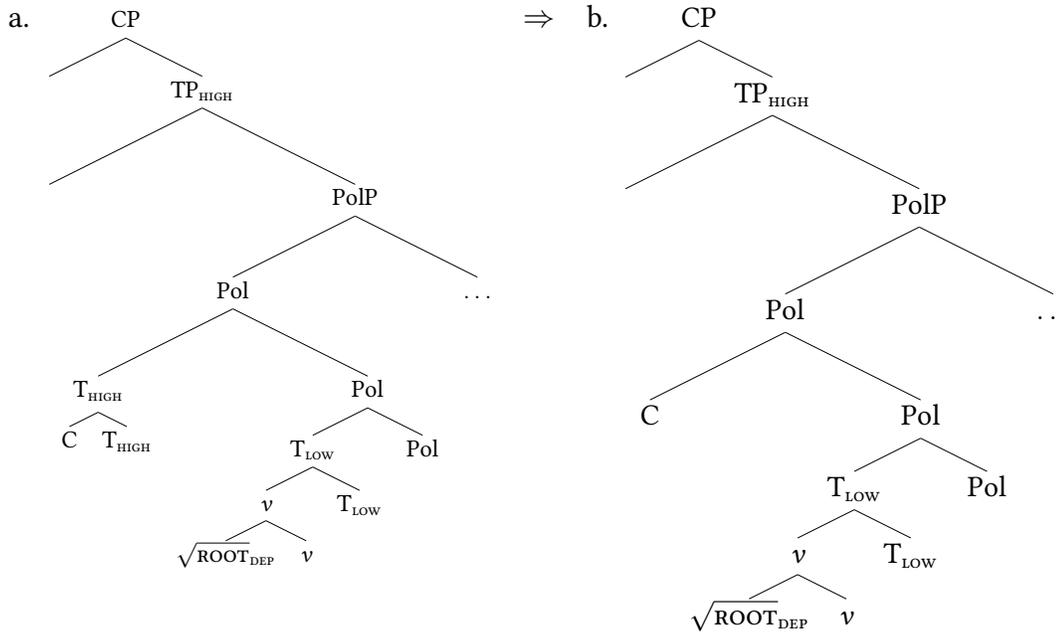
Instead, I propose that the idea we need is 'Obliteration.' Obliteration is subtly similar to Impoverishment (Noyer, 1992), but different in important ways. As Arregi and Nevins put it, "impoverishment. . .deletes the features of a node. . .and obliteration. . .deletes the entire morpheme. . .with concomitant effects on the allomorphy of other terminals" (Arregi and Nevins 2007, pg. 1, emphasis not present in the original). The cases Arregi and Nevins talk about in terms of allomorphy are different from those here as they involve a node β not showing sensitivity to a silent node α , leading them to argue that α is 'obliterated' in certain contexts. Here I propose that Obliteration also yields a good understanding of our Irish facts.

Recall that in the Irish cases, a node T_{HIGH} which is normally present seems to not be present in the context of a dependent root; it is not realized morphologically, and it is invisible for the purposes of adjacency. Thus, I propose that in the context of a dependent root, T_{HIGH} simply is not present. Note again that the Irish cases are very different from the cases Embick considers. For Embick, Pruning is interleaved with Vocabulary Insertion.

The process I propose is different, and much more reminiscent of the morphological processes found in Arregi and Nevins (2012). Specifically, I propose that T_{HIGH} is totally deleted when it occurs between a triggering complementizer and a dependent root. I call this process ‘*T-Obliteration*²⁷’. This is schematized in (79) and (80). (79) demonstrates the basic schema for T-Obliteration, while (80) shows its effects on structures.

$$(79) \quad \mathbf{T-Obliteration:} \quad C_{\text{TRIGGER}} T_{\text{HIGH}} \sqrt{\text{ROOT}_{\text{DEP}}} \Rightarrow C_{\text{TRIGGER}} \sqrt{\text{ROOT}_{\text{DEP}}}$$

(80)



There are a few observations to be made here. First, as the schema in (79) makes clear, this process must happen after linearization has concatenated the relevant nodes (see Embick and Noyer 2001; Arregi and Nevins 2012, a.o.). This is the only way the nodes will meet the correct conditions for T-Obliteration to be triggered. Second, as can be seen in (80b), T-Obliteration completely destroys any and all trace of T_{HIGH} ²⁸. This puts C and the root in a very different relationship than they were in pre-T-Obliteration. Now, C and the root are linearly adjacent, and C c-commands the root. This will be relevant in our discussion in §6. Finally, this operation

²⁷Note that this process must be separate from VI. If it were a part of VI, then we would run into the same problem as with Embickian Pruning. The ordering of the derivation will be discussed in more detail below.

²⁸Note that because this is a morphological process, we do not expect it to have any effect on the semantics. As far as LF is concerned, T_{HIGH} is still present.

There is an additional point about the formalization of this process. As it is stated now, it is highly reminiscent of the transformation rules of the 60’s and 70’s in generative syntax. This is because it states that when a certain structural description is met, that structure changes. Whether or not there is a better way of stating this is beyond me at this moment in time. But I think it is worth mentioning that this Pruning process fits into the general research program set out in Arregi and Nevins (2012). In this work, the authors attempt to draw parallels between morphological processes and phonological processes, arguing that human language makes use of the same operations in different modules of the grammar. This pruning process is very similar to run of the mill segmental processes which delete certain segments or features in certain environments. Therefore the rule itself should not be too surprising, because we are used to this type of operation elsewhere. This parallel with the phonology is so striking that it is tempting to use an OT formalism, as phonology has had great success in moving away from derivational models. I will leave this account to future research though.

straightforwardly explains why *-r* is not present with dependent roots but is present otherwise. T_{HIGH} is only Obliterated in the environment of dependent roots. This means that this node is not ever present during VI when a dependent root is present, assuming that this process happens before VI. Additionally, this node will not be Obliterated when a non-dependent root is present, explaining the distribution of *-r*. The only stipulation we need at this point is that T-Obliteration is present in every modern Gaelic dialect. This seems reasonable, because it is very old in the Gaelic languages, as it is attested in Irish and Scottish Gaelic, which diverged from Middle Irish sometime between 1000 and 1500 C.E.²⁹.

Moreover, this analysis of T-Obliteration allows us to account in a very natural way for the attested dialect variation. Take, for example, the Baile an Lochaigh data discussed in §3. Recall that this dialect never has *-r*. To account for this dialect, the only thing we need to say is that the T-Obliteration rule in (79) was generalized to occur in the presence of all roots, not just the dependent ones. The generalization is reasonable, as the dependent roots are very high frequency, making the Baile an Lochaigh dialect a classic case of overgeneralization.

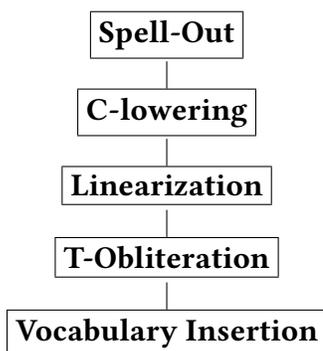
Furthermore, the existence of this Obliteration rule in these languages is not surprising from the perspective of the learner. When a learner is acquiring one of these languages, she presumably enters the task of acquisition with some type of locality conditions on allomorphy selection, such as those discussed in (5) above, reproduced below in (81).

- (81) ***The Licensing Condition for Contextual Allomorphy***: For a node α to trigger allomorphy on a node β , α and β must not be separated by any XP boundaries, and $\alpha \sim \beta$.

Therefore, the learner knows that two nodes must be within the same morphological word and linearly adjacent in order for allomorphy to be triggered. Assuming that the learner also knows that VI must begin at the root, she must posit such a rule in order for C and the root to be linearly adjacent. She knows from the linguistic stimulus that she receives that C can trigger allomorphy on verbs in the form of the DPA, and if she also knows the locality conditions in (81), she must posit such a rule in order to account for why such allomorphy is present. Furthermore, if she posits T-Obliteration as a morphological operation preceding VI, we will not have a Look-Ahead problem once we get to VI.

With this discussion in place, below in (82) I present the proposed derivation for Irish after the narrow syntax.

- (82) *Structure of Irish Spell-Out*

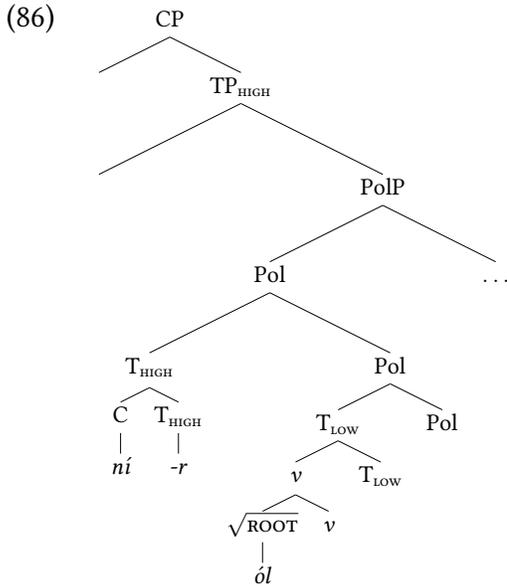


It is worth highlighting which orderings here are necessary. First, placing C-lowering before or after Linearization does not seem to affect anything in a substantive way. Here, I simply follow Embick and Noyer

²⁹Dating the precise time when the two languages diverged is difficult because speaker in Scotland and in Ireland used the same literary language until the middle of the 17th century. Additionally, Gaels in Scotland identified ethnically as ‘Irish,’ and this identification continued into the early 20th century.

assume that what Linearization does is ‘fix’ the order of the hierarchical structure in (74) in a way already indicated throughout the paper. Importantly, we will not T-Obliterate here. This is because the structural description for T-Obliteration is not met, as T_{HIGH} does not linearly precede a root with the DEP ‘dependent’ diacritic.

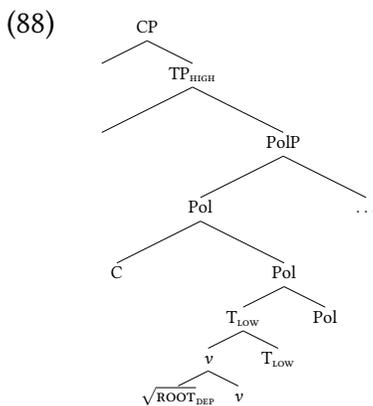
Thus, VI can occur in the usual way, from the root up, and this will give us the verbal complex we want, shown below.



Now let us consider what happens when we want to Spell-Out a verbal complex with a dependent root, such as that in (87).

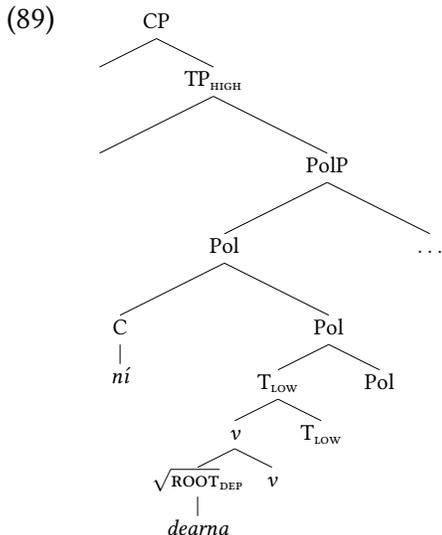
- (87) Ní dhearna. . .
 NEG do.PAST.DEP
 ‘. . .didn’t do. . .’

The derivation for this verbal complex follows much the same steps; C-lowering and Linearization are identical in the two derivations. Where they part is that, after Linearization, not shown here due to the limitations of two-dimension presentation, T-Obliteration applies. T-Obliteration, applied to a structure such as (85), will produce (88).



Importantly, this structure changes the relation between the nodes C and $\sqrt{\text{ROOT}}$. Now, C and the root are

linearly adjacent, and additionally C c-commands the root. They are now local enough for allomorphy to be triggered according to the licensing conditions in (81). This will correctly give us the result of VI in (78).



To conclude this section, I have proposed a morphological process T-Obliteration, which has the effect of eliminating the morphosyntactic exponent of a node, in this case T_{HIGH} . This T-Obliteration process differs from Pruning in Embick (2003, 2010) in that it is not interleaved with VI, but rather precedes it, and is triggered when the correct structural description is met. This operation allowed us to straightforwardly explain the distribution of *-r*, and furthermore, it allowed us to maintain the hyperlocal conditions on contextual allomorphy which we set out in the beginning of this paper to defend, reproduced below in (90).

(90) **The Licensing Condition for Contextual Allomorphy:** For a node α to trigger allomorphy on a node β , α and β must not be separated by any XP boundaries, and $\alpha \curvearrowright \beta$.

In the previous sections, we presented C-lowering as a way of understanding the first clause of these conditions. T-Obliteration allows us to understand the second because it causes C and the verbal root to be linearly adjacent. Therefore, these two operations allow us to maintain the locality conditions in (90). This is a welcome result.

5 Lingering Issues and Future Directions

In this section I will address some open questions brought up by this proposal. Particularly I will be concerned with the C-lowering process and the Pruning process, and what motivates them. Additionally, in §5.3 I will turn my attention away from Irish to Scottish Gaelic and see how the present proposal can account for the data in this closely related language.

5.1 What Motivates C-lowering?

In the morphological literature, surprisingly little attempt has been made to motivate morphological processes. Instead, the literature, reasonably, has been focused on identifying morphological processes in the first place, and carving out a space in the grammar for them. A complete account of the motivation of C-lowering, or any other

kind of Lowering, is beyond the scope of this paper, but below I present a few suggestion for what motivates C-lowering in Irish. Particularly, in this language it seems to have to do with the finite verb, as opposed to any requirement of the complementizer.

To see that C-lowering is triggered by the verb and not by features on C, let us look again at the coordination data discussed above in §2.2.3. There, I argued that C must lower into each conjunct, and that if each verb does not occur with a C it is ungrammatical. The data are reproduced below in (91) and (92).

(91)

Níor [[ith mé prátaí] nó [ól mé deoch]] → Níor [[níor ith mé prátaí] nó [níor ól mé deoch]]

- (92) a. *Níor ith mé prátaí nó ól mé deoch.
 NEG-*r* eat.PAST I potatoes or drink.PAST I drink
 Intended: ‘I didn’t eat potatoes or drink a drink.’
 b. *Ith mé prátaí nó níor ól mé deoch.
 eat.PAST I potatoes or NEG-*r* drink.PAST I drink
 Intended: ‘I didn’t eat potatoes or drink a drink.’

Here we see that if the complementizer Lowers only into one conjunct, the result is ungrammatical. Rather, it must Lower into each conjunct, as in (91).

Now, Irish provides a way to test to see whether C-lowering is motivated by the verb or not. The language has a nonverbal predication construction (McCloskey 1978, 2005; Carnie 1995, 1997 a.o.) in which C occurs without a verb, as shown in (93).

- (93) a. An duine de na fearaibh é?
 Q person of the men he
 ‘Is he one of the men?’
 b. Ní aon bhligeardaithe iad.
 NEG any blackguards they
 ‘They are no blackguards.’

McCloskey (2005)

Here I will be abstracting away from the structure of these sentences and instead focus on how the complementizers behave when such nonverbal predication clauses are coordinated. When two nonverbal predicates are coordinated, the complementizer does not Lower into each of the conjuncts, unlike with the verbal predicates in (91) and (92). Note that I follow Carnie (1997) in analyzing what I gloss as ‘COP,’ *is*, as a complementizer which only occurs in nonverbal predication constructions.

- (94) a. Is [cumadóir ceoil] agus [scríbhneoir nótaí] é.
 COP composer music.GEN and writer noted he
 ‘He is a composer of music and a noted writer.’
 b. Is [dochtúir] nó [banaltra] í.
 COP doctor or nurse she
 ‘She’s a doctor or a nurse.’
 c. Ní-or [dochtúir] ná [banaltra] í mo sheanmháthair.
 NEG-*r* doctor nor nurse she my grandmother
 ‘My grandmother wasn’t a doctor nor a nurse.’

McCloskey (2005)

The important thing about the data in (95) is that the complementizers, here *is* and *níor* do not Lower into each conjunct.

When we compare the nonverbal predication facts to the verbal predication data above we can infer something about what motivates Lowering. Because Lowering must occur with verbal predication, but not with nonverbal predication, we can conclude that Lowering must be driven by something relating to verbs. This is because the C layers in both utterances are conceivably identical, the only difference being the the category of the predicate. By this reasoning, the examples in (92) are bad because whatever enforces Lowering is not satisfied in one of the conjuncts.

There is an interesting parallel here in the Irish cases and the classes of Lowering in English, namely T-V Lowering (Embick and Noyer, 2001). In both cases, what is happening is a specification for tense, the sole overt T projection in English and T_{HIGH} in Irish, must form a morphological word with its associated finite verb. I am not sure at this time exactly how this intuition can be understood formally, but the parallel is striking.

5.2 How does C-lowering Relate to Phase Theory?

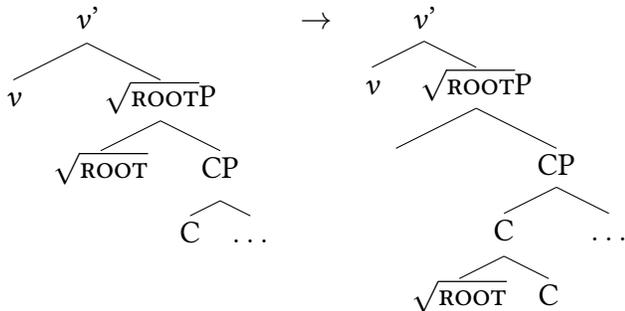
Another interesting open question involves C-lowering and phase theory (Chomsky, 2001, 2008). The crucial Lowering operation lowers a phase head, C, into its complement, in other words, into its Spell-Out domain. Phase theory, as usually conceived, predicts this to be impossible.

There are a few possible routes that one could take to get around this problem while maintaining some version of cyclical, i.e., phasal, syntax. One would be to claim that Spell-Out domains do not correspond to complements of phase heads, but rather to Extended Projections (Grimshaw, 2000), as in Chesi (2007). Another would be to claim that the original formulation in Chomsky (2001) that a phase head is not within its Spell-Out domain is incorrect, and whole phases correspond to Spell-Out domains, as in Fox and Pesetsky (2005).

But no matter what view of phases one wants to take, if the analysis presented here is on the right track, then the theory should allow for this kind of Lowering operation. Interestingly, this work ties in with an idea in the phonological literature that the domain for syntax-phonology interactions is not the Spell-Out domain, but rather something larger, such as the entire clause (Selkirk, 2009, 2011), or even the entire syntactic structure (Cheng and Downing, to appear). As the morphological component within DM is thought of as a part of the PF branch of the standard Y-Model, this should not be too surprising.

Independently, there is good reason for thinking that the domain for morphological processes is not the Spell-Out domain, but rather something bigger, like an Extended Projection. Morphological processes such as Lowering or Fusion never seem to apply to terminal nodes which are adjacent but across Extended Projection boundaries, even if they are within the same Spell-Out domain. For instance, we never find a verbal root lowering to C, even though they are in the same Spell-Out domain (the Spell-Out domain of v). Such a Lowering process would create a structure as in (95).

(95)



The structure in (84) is predicted to occur if the domain of morphological operations is the Spell-Out defined in terms of phase theory. But this structure, to my knowledge, never occurs in the world's languages. This observation seems to suggest that the domain for morphological operations is indeed not the Spell-Out domain, but rather either an entire Extended Projection or the entire clause, as is commonly proposed in the syntax/prosody interface literature (see the citations above).

5.3 Scottish Gaelic?

As noted at various points above, Scottish Gaelic has a practically identical pattern of dependent/independent alternations³⁰. Additionally, there is an identical pattern like Irish *-r*, with the morpheme *do*. The pattern is exemplified in (97) and (98).

- (96) a. An **do** chuir thu an t-uisge-beatha 'san fhuaradair?
 Q T_{HIGH} put.PAST you the whisky in.the refrigerator
 'Did you put the whisky in the refrigerator?'
 b. *A' chuir thu an t-uisge-beatha 'san fhuaradair?
 Q T_{HIGH} put.PAST you the whisky in.the refrigerator
 Intended: 'Did you put the whisky in the refrigerator?'
- (97) a. Bha thu tinn.
 be.PAST.INDEP you sick
 'You were sick.'
 b. An robh thu tinn?
 Q be.PAST.DEP you sick
 'Were you sick?'
 c. *A' bha thu tinn?
 Q was.INDEP you sick
 Intended: 'Were you sick?'
 d. *An do robh thu tinn?
 Q T_{HIGH} be.PAST.DEP you sick
 Intended: 'Were you sick?'
 e. *An do bha thu tinn?
 Q T_{HIGH} be.PAST.INDEP you sick
 Intended: 'Were you sick?'

In (97), we see that *do*, like *-r* in Irish, is mandatory with a nondependent root. (98) shows that, like Irish, when a dependent root is present it must occur, and no other options are available.

Thus, Scottish Gaelic shows an identical pattern of DPA like Irish. Therefore, given the locality conditions in Bobaljik (2012), we expect Scottish Gaelic to show the same pattern of C-lowering that Irish does.

Interestingly, all the data which suggest C-lowering for Irish point in the opposite direction for Scottish Gaelic³¹. First, Scottish Gaelic does not allow NPIs to front before their licensors.

³⁰Note that all the data in this section are based on original fieldwork with two female speakers in their early 20's from the Isle of Skye. Any and all errors all my own.

³¹This observation was made in Adger (1997), but as far as I know no substantive investigation of these data was made.

- (98) a. *Duine sam bith chan fhaca mi!
 person any NEG see.PAST.DEP I
 Intended: ‘Not a single person have I seen!’
 b. *Càil cha d’rinn mi air mo shaor-làithean.
 cabbage NEG T_{HIGH} do.PAST I on my vacation
 Intended: ‘Not a single thing did I do on my vacation.’

Here we see that the phrase *duine sam bith* ‘anyone’ and the NPI *càil* cannot front before their licensor, the negative complementizer *cha*.

Second, Scottish Gaelic does not allow leftward adjuncts like Irish does. The example in (101) is the closest possible translation of the Irish example in (100) from McCloskey (1996).

- (99) Deiridís [an chéad Nollaig eile] go dtiocfadh sé aníos.
 say.3PL.PAST.HAB next Christmas C come.COND he up
 ‘They used to say that next Christmas he would come up.’ McCloskey (1996)
- (100) *Thuir iad [an Nollaig sa tighinn] gun tilleadh e.
 say.PAST they next Christmas C return.COND he
 Intended: ‘They said that next Christmas he’d come back.’

The ungrammaticality of (101) indicates that the adverb *an Nollaig sa tighinn* ‘next Christmas’ has to be interpreted in the higher clause, unlike in Irish. This leads to a tense clash in the higher clause, causing ungrammaticality. Therefore Irish and Scottish Gaelic diverge here as well.

Finally, Scottish Gaelic does not allow negation to take scope of a disjunct even when a context is created which should force this reading. This is shown in (101). (101a) provided the context for the target sentence (101b), and (101c) concluded the mini-discourse.

- (101) a. Thuir do sheanmhair gu robh feum agad rudeigin ithe mus deach
 said your grandmother C be.PAST.DEP need at.you something eat.NONFIN before go.PAST.DEP
 thu dhachaigh, ach cha robh an t-acras ort.
 you home but NEG be.PAST.DEP the hunger on.you
 ‘Your grandmother told you that you needed to eat something before you went home, but you weren’t hungry.’
 b. *Cha do dh’ith thu an t-iasg air neo cha do dh’òl thu am bainne...
 NEG DO eat.PAST you the fish or NEG DO drink.PAST you the milk
 Intended: ‘You didn’t eat the first or drink the milk.’
 c. ... oir bha thu dìreach airson dol dhachaigh.
 because be.PAST.INDEP you just for go.NONFIN home
 ‘... because you just wanted to go home.’

Speakers reject (102b) in this context, wanting *air neo* ‘or’ to be replaced with *agus* ‘and.’ This is consistent with the semantic analysis for similar Irish sentences.

In Irish, sentences of this form mean $(\neg p \wedge \neg q)$, which, via de Morgan’s law, we analyzed as $\neg(p \vee q)$. In Scottish Gaelic, it seems that they can only take the surface meaning, something like $(\neg p \vee \neg q)$. This does not make sense in this context. Instead, speakers require the straightforward, surface order in this context; they do not allow the possibility that Irish does of interpreting negation above disjunction. This makes them want to replace ‘or’ with ‘and,’ as this would make sense in this context. Therefore, this is further evidence against

C-lowering in Scottish Gaelic.

Thus, there is no evidence for C-Lowering in Scottish Gaelic. In the absence of C-lowering, the question arises of how the right locality conditions can be taken to govern the alternation between dependent and independent forms. It may be that the morphology, in addition to having Lowering processes, also has a ‘Raising’ process. How this differs from traditional head movement will be left as a topic of future research.

6 Conclusion

In this paper we started from the premise that the restrictive locality conditions present in the literature are worth maintaining. These locality conditions are codified below in (103).

(102) ***The Licensing Condition for Contextual Allomorphy***: For a node α to trigger allomorphy on a node β , α and β must not be separated by any XP boundaries, and $\alpha \sim \beta$.

On the surface, the dependent/independent alternation in Irish violated these locality conditions. This is because complementizers triggered allomorphy on following verbs, and the syntax could reasonably be analyzed as having at least one maximal projection boundary separating the two nodes. But, we saw that if we allow for post-syntactic, morphological Lowering, then we can create the right environment the locality conditions in (103) to apply. But this Lowering process in the Irish context created a new, interesting set of questions.

First, we proposed a T-Obliteration process, which more closely resembled the morphological rules of Arregi and Nevins (2012) than the Pruning of Embick (2010). This process was required to get C and the verbal root local enough for allomorphy to be triggered, and to explain why *-r* does not occur with dependent roots. This T-Obliteration process also embodied the requirement which Irish wears on its sleeve: **C can only trigger allomorphy on a verb if they are linearly adjacent**. Thus, not only does Irish provide evidence that two nodes must be in the same morphological word for allomorphy to be triggered, but it also straightforwardly advertises the requirement that two nodes be linearly concatenated for contextual allomorphy to be possible.

Finally, we concluded by investigating some interesting data from Scottish Gaelic. Comparing Scottish Gaelic to Irish is particularly fruitful because the languages are so closely related, often regarded as dialects of a single language. And in many ways, they are very similar. For instance, verbal complexes in the ways relevant to this paper are identical between the two languages. But intriguingly, there is no evidence for C-lowering in Scottish Gaelic, and if anything, there is evidence that C-lowering does not exist. Therefore, the story we told for Irish to save the locality conditions in (103) cannot be applied directly to Scottish Gaelic. But this, and a more thorough cross-linguistic microsyntactic comparison between the two languages, I leave to future research.

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